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THE ROLE OF X-RAY PELVIMETRY IN OBSTETRICS

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Chicago, Illinois

MOST American radiologists of my vintage knew Russell D. Carman personally, but through quirks of circumstance I was denied that pleasure. When I first visited the x-ray department at the Mayo Clinic in the winter of 1911-12, Carman had not yet come, and by the time I worked as a student assistant to Walter Mills in St. Louis in 1916, Carman had left that city and his association with Mills to go to Rochester. Following the first World War, my home was outside the country for seven years, and in 1926, before I returned to the United States, Carman died of the very disease that had been his special field of study.

Like radiologists everywhere, I have been influenced strongly by the work of this great exponent of our profession, and I am honored indeed to be invited to give one of the lectures in this series that was created to do honor to his memory.

Pelvimetry

X-rays have been available to physicians for more than half a century and, of course, geometry is some twenty-two centuries old; but though x-ray pelvimetry requires only simple geometry applied to quite ordinary looking pelvic roentegenograms, it has not yet come to occupy a place of much importance in obstetrics. To some extent, radiology is to blame for this fact, but according to Nicholson Eastman, who is chairman of the Department of Obstetrics at Johns Hopkins University, most of the blame attaches to the fact that obstetricians have been slow to accept pelvimetry of any sort and not sufficiently critical of such measurements as they have bothered to make.[2]

Hippocrates started the trouble by teaching that at term the fetus, by the use of his hands and feet, ruptured the membranes and worked his way through the birth canal under his own power, the principal maternal contribution being a separation of the symphysis, which allowed the birth canal to stretch as the fetus passed through it. As Eastman points out, "The . . . concept . . . that the pelvis is an elastic ring capable of enlarging as necessary to permit passage of the infant would naturally nullify . . . any thought that narrowness of the bony passages . . . could impede the birth of the infant. In other words, any case of difficult labor which in modern times would be attributed to contracted pelvis was ordinarily explained before 1700 on the grounds that the ligaments of the pelvis failed to stretch. With this idea of the mechanism of labor in mind, there could be no such thing as dystocia due to contracted pelvis as we understand the term, and pelvic mensuration would be . . . quite meaningless. It would have been . . . about as significant as measuring the lumen of the nonpregnant cervix in order to ascertain if a full-term infant could pass through it."

It is true that before 1600, Vesalius[3] and Arantius[1] had maintained dogmatically that neither in women nor in animals was there the slightest evidence of separation of the symphysis during labor, but in those days anatomy was anatomy

The Russell D. Carman Memorial Lecture presented at the annual meeting of the Minnesota State Medical Association, Minneapolis, Minnesota, June 7, 1948.

and obstetrics was obstetrics, and the old errors continued to be accepted in clinical circles for more than a hundred years.

In the year 1701, Hendrik Deventer recognized contraction of the pelvis as an important cause of dystocia, and in 1722 de la Motte named smallness of the inlet as the most important type of contraction, but it remained for Leveret in 1753 and William Smellie in 1754 to actually measure the pelvic dimensions of pregnant women and put those measurements to obstetrical use.

If Smellie's internal physical pelvimetry had remained alone in the field, the advent of x-rays in 1895 probably would have been followed by the rapid and widespread acceptance of x-ray pelvimetry, because obviously the patient would have been safer and the measurements more accurate if a beam of x-rays passing through the abdomen were substituted for a hand or caliper introduced through the vagina. Unfortunately, however, the year 1775 saw the introduction of Baudelocque's easier but far less dependable external pelvimetry. In retrospect, it is hard to understand the complacency with which obstetricians followed Baudelocque's teachings during the next century and a half without bothering to discover their inadequacy. They were accepted, however, and years later their acceptance delayed the development of x-ray pelvimetry because, unlike internal physical pelvimetry, external mensuration was easy and devoid of direct injury to the patient. Of course, it had one overwhelming fault, namely, failure in many cases to give accurate information as to the size of the birth canal, but it took Baudelocque's followers 150 years to discover that fault.

A most important factor in exposing the inadequacy of external pelvimetry has been the introduction of x-ray measurement, and obstetricians have been as active as radiologists in this work. In many localities, however, the radiologist is not equipped for pelvic measurement, and, on the other hand, one occasionally finds overenthusiastic x-ray workers who place too much emphasis on x-ray pelvimetry and underestimate the importance of good obstetrics. The pregnant woman who receives the care of a competent obstetrician and also a competent radiologist is twice blessed; she who has an experienced obstetrician but no radiologist at all has little to fear in most cases; but unfortunate indeed is the one whose obstetrician is incompetent regardless of the quality of the radiology that may be available to her.

While, in the main, radiology has played a minor role in the practice of obstetrics, it is important to note that in the United States alone there are several centers where x-ray pelvimetry has been employed skillfully and freely for many years. As to methods, surely there is no dearth. Some hundreds have been described, and there is a new flock each year, but all can be reduced to one of four fundamental approaches, and most allegedly new methods are really rediscoveries of old ones.

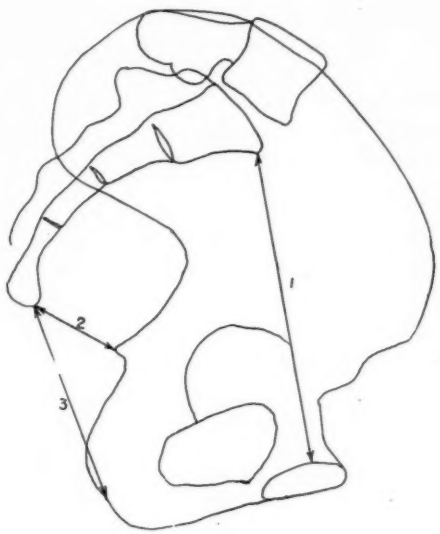

Fig. 1. Pelvic dimensions seen in the lateral view. (1) AP diameter of inlet. (2) Posterior sagittal of mid pelvis. (3) Posterior sagittal of outlet.

At the Chicago Lying-In Hospital we are engaged in a project calculated to answer such questions as:

1. Should x-ray pelvimetry be included as part of the routine examination of all primiparas?
2. If not, then what are the clinical criteria that call for it?
3. What pelvic dimensions should be measured?
4. What is the normal range of these dimensions?
5. How much below normal must these dimensions fall before the obstetrician is warranted in foregoing a test of labor and proceeding directly to surgical delivery?

A thousand consecutive primiparas are being examined by us; several different physicians and

technicians are engaged in the work, and we are measuring the pelves as completely as possible. Under such conditions, accuracy and objectivity are essential, and the expenditure of considerable

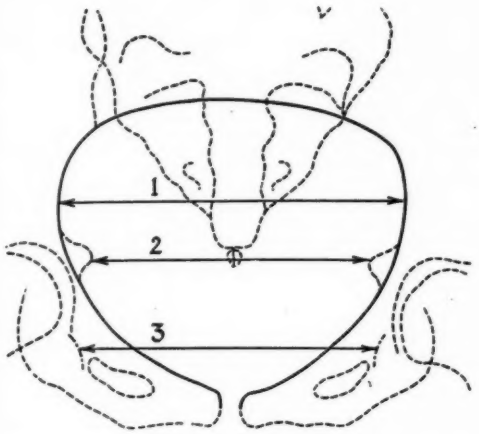

Fig. 2. Pelvic dimensions seen in the frontal view. (1) Transverse diameter of inlet. (2) Transverse diameter of mid pelvis. (3) Transverse diameter of outlet.

time and money upon special equipment is justifiable and even actually economical. I shall have failed in one of the purposes of this talk, however, if I lead you to believe that elaborate special equipment is essential to good work in those laboratories in which pelvimetry is done only occasionally.*

Pelvic Dimensions Seen in the Lateral View

In an ordinary lateral roentgenogram (Fig. 1) the end points of three important obstetrical diameters can usually be made out; but because of the phenomenon of divergent distortion, measurements of the images of these diameters are greater than the diameters themselves. The diameters in question are:

1. The obstetrical conjugate, which is measured from the sacral promontory to the most prominent point on the posterior surface of the pubic symphysis.

2. The posterior sagittal of the mid-pelvis, which is measured from the mean position of the images of the tips of the two spinous processes to the nearest point on the sacrum.

3. The posterior sagittal of the outlet, which is measured from the mean position of the posterior surfaces of the right and left ischial tuberosities to the nearest point on the sacrum.

Pelvic Dimensions Seen in the Frontal View

In the frontal view (Fig. 2), that is, in a roentgenogram made with the patient lying on her back, three more significant pelvic diameters can be seen:

1. The transverse diameter of the inlet.

2. The interspinous diameter, which is the transverse diameter of the mid-pelvis.

3. The intertuberous diameter, which is measured between the right and left crescentic lines which represent the vertical medial surfaces of the right and left ischial tuberosities.

This latter is the transverse diameter of the outlet.

In order to measure these six dimensions in laboratories where there are only occasional calls for pelvimetry, my own preference is to make a single lateral 10-inch by 12-inch roentgenogram that carries the image of an isometric scale and a pair of stereoscopic frontal 10-inch by 12-inch roentgenograms in which the amount of the tube shift (K) is known and which carry register marks so that the films can be superimposed for the measurement of parallax. The films themselves can be made by any x-ray technician using any type of commercial x-ray equipment, and only two special accessories are required:

1. An isometric scale. This is a radiotranslucent rod or strip about 20 cm. long and calibrated at ½ cm. intervals by embedded lead shot or other opaque markers. The scale must be provided with a suitable mount so that it can be stationed between the x-ray tube and the film exactly in the mid-plane of the patient's body. Several commercial scales have been advertised, and innumerable homemade scales have been published.

2. A register marker. For convenience, we designate as the optical center of a roentgenogram that point near the center of the roentgenogram which lay perpendicularly below the target of the x-ray tube when the target was in its mean position midway between the extremes of the stereoscopic shift. Since cassettes fit loosely into grid trays, grids fit more or less loosely into the tracks in which they run, and films fit loosely into cassettes themselves, it follows that the optical centers of a pair of stereoscopic roentgenograms seldom coincide exactly with their geometric centers and a marker of some sort is necessary if the optical centers are to be identified. A satisfactory and inexpensive register marker can be prepared from a sheet of tempered masonite ¼" thick, 20" long and as wide as the x-ray table that is to be used. This sheet must be equipped with lugs or clips

*As presented at the June meeting, this portion of the paper was followed by the showing of twenty-eight lantern slides and a discussion of the fundamental aspects of many of the pelvimetry methods that have been published from time to time. In the present publication only three of the lantern slides are reproduced (Figs. 1, 2 and 3), and description of technical details has been reduced proportionately.

or clamps by means of which it can be attached quickly and securely to the table top. The details of design will vary with the particular apparatus with which it is to be used, but any qualified x-ray serviceman should be able to make a marker suitable for his com-

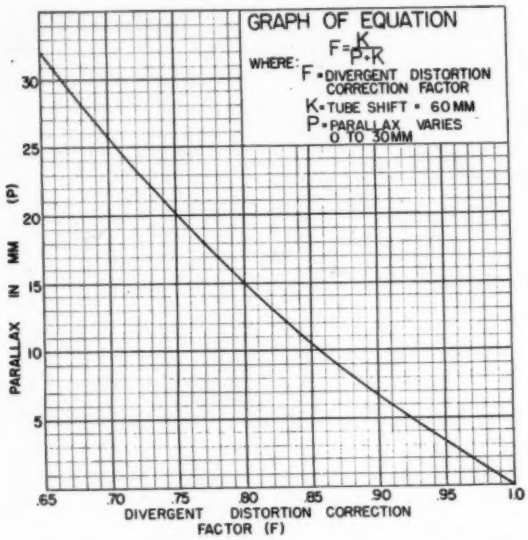

Fig. 3. Graph for obtaining divergent distortion correction factor (F) from measured parallax (P) in a pair of stereoroentgenograms made with a tube shift (K) of 60 mm.

pany's equipment. Embedded in the masonite so that their crossing lies perpendicularly beneath the mean position of the target of the x-ray tube are two 10-cm. cross wires made of approximately 20 gauge lead fuse wire.

Making the Stereoscopic Frontal Films

Attach the register marker to the x-ray table and lock the tubestand in position so that the mean position of the target is perpendicularly above the center of the cross wires. Lock the grid in position so that the center of the grid tray lies perpendicularly beneath the center of the cross wires. These spatial relationships are critical but once they have been established, preferably with the assistance of a machinist, marks can be filed or sawed or stamped into the apparatus so that for subsequent examinations the setup will be simple and easy. The height of the target above the film, or in other words the target-film distance, is not a factor in the accuracy of the measurement but is determined by the radius of the grid that is used—in most American equipment, 36 inches.

Shift the tube away from its mean position as far as it will go toward the back of the table.

Work sheet for obtaining seven points on the curve defined by the equation, $F = \frac{K}{P+K}$

Where and $K = 60$ mm.
P varies from 0 to 30 mm.

Where $P = 0$	$F = \frac{60}{0+60}$	$= \frac{60}{60}$	$= 1.000$
Where $P = 5$ mm.	$F = \frac{60}{5+60}$	$= \frac{60}{65}$	$= 0.923$
Where $P = 10$ mm.	$F = \frac{60}{10+60}$	$= \frac{60}{70}$	$= 0.857$
Where $P = 15$ mm.	$F = \frac{60}{15+60}$	$= \frac{60}{75}$	$= 0.800$
Where $P = 20$ mm.	$F = \frac{60}{20+60}$	$= \frac{60}{80}$	$= 0.750$
Where $P = 25$ mm.	$F = \frac{60}{25+60}$	$= \frac{60}{85}$	$= 0.706$
Where $P = 30$ mm.	$F = \frac{60}{30+60}$	$= \frac{60}{90}$	$= 0.666$

Place a 10-inch by 12-inch loaded x-ray cassette in the grid tray and have the patient lie supine on the table with the center of the pelvic inlet approximately over the center of the film. Secure her in place by means of a compression band. Now make the first exposure. Then shift the tube forward through its mean position as far as it will go in the forward direction, insert the second film and make the second exposure. Note that the tube shift should be across the midline of the patient. In most apparatus this will mean that it is also across the strips in the grid, which makes for slightly greater absorption in the grid than when the shift is longitudinal. This loss by absorption is negligible, however, and, as we shall presently see, transverse shift has an important advantage in the measurement of the transverse diameter of the inlet. The exact amount of the stereoscopic shift (K) does not affect the validity of the measurement, provided (a) it is parallel to the plane of the film and always of a known and constant amount, and (b) that the parallax graph has been drawn for the particular tube shift that is being used.

The graph illustrated in Figure 3 has been drawn for a tube shift (K) of 60 mm. and the work sheet shows how the seven points on the curve were established. If the shift available in a particular x-ray apparatus cannot be adjusted until it is exactly 60 mm., one may draw a new curve through seven new points obtained from a work sheet in which the new K (measured in mm.) is substituted for 60 mm.

Work-up of Frontal Films

In the completed films, identify the right and left margins of the pelvic inlet, the right and left ischial spines and the right and left ischial tuberosities, and by means of a small sewing needle make holes in the film to identify these six points in both of the films. Now superimpose the films so that the two shadows of the cross wires coincide and passing the needle point through the holes in the front film make six more holes in the rear film. The rear film now has two needle holes for each of the six anatomical parts in question and the measured distance between the pairs of holes constitutes the parallax or P for each of these points. From the parallax graph (Fig. 3) determine the correction factors for the right and left ends of the pelvic inlet, add the two factors together and divide by 2 to obtain the mean factor. Measure the gross transverse diameter on both films, add the two diameters and divide by 2 to obtain mean gross transverse diameter. Multiply mean gross transverse diameter by the mean correction factor for this diameter, thus obtaining the net or actual transverse diameter. By similar means obtain net interspinous and net intertuberous diameters.

The following are probably not far from the average normals for these three dimensions:

Transverse diameter of inlet	13.5 cm.
Interspinous	10.5 cm.
Intertuberous	10.0 cm.

Making the Non-Stereoscopic Lateral Film

Lock the tube at the mean position midway between extremes of the stereoscopic shift so that the target lies perpendicularly above the center of the cross wires in the marker.† Arrange the patient on her side on the x-ray table with the center of the pelvic inlet approximately above the center of the film and secure her with a compression band. Fix the isometric scale in position so that it is close to the patient's back, parallel with the plane of the film and in the plane of the spinous processes and make a single exposure.

Work-up of the Lateral Film

In the completed film, set calipers on the obstetrical conjugate, and then transferring them to the image of the isometric scale, read the separation of the caliper points in half centimeters and estimated smaller fractions of a centimeter. By the same means, measure posterior sagittal of the mid pelvis and posterior sagittal of the outlet.

The following are probably not far from the average normals for these three dimensions:

Obstetrical conjugate	10.5 cm.
Posterior sagittal of mid pelvis	4.0 cm.
Posterior sagittal of outlet	5.0 cm.

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1. Arantius, Julius Caesar: De Humano Foeta Liber.
2. Eastman, Nicholson J.: Pelvic mensuration. A study in the perpetuation of error. Obst. Gynec. Survey, 3:301-321, (June) 1948.
3. Vesalius, Andreas: Hum. Corp. Fabrica. Chapter 39.

†The marker is essential for the frontal films but merely convenient for the lateral.

SAN FRANCISCO DOCTOR PRESENTS HIS OWN PROGRAM

In this day and age when everybody is talking himself hoarse about medical plans and programs, Dr. Anthony B. Diepenbrock of San Francisco comes up with his own 13-point health program:

1. Continue to sit on your fat derriere and do nothing.

2. Be apathetic and, like 5,000,000 registered Republican voters who failed to vote, do not bother to make your opinion known. If you think, as they did, that your opinion or your vote is not worth anything, the opposition will agree with you and act accordingly.

3. Write an occasional letter to your congressman, tell him off, and then explain proudly to the interns in the surgical dressing rooms how smart you are and what a stinker your congressman is.

4. Tell everybody you see that the gag is up, and we might as well prepare for the inevitable.

5. Moan and groan and issue explosive and unprintable epithets.

6. Refer to your medical leadership as a group of impotent, ineffective and bumbling ignoramuses.

7. Make speeches before sympathetic lay audiences, and convert those who already believe in free enterprise.

8. Don't bother to tell your county society heads, your state society heads, or your national association heads what you want them to do. Expect them to find a way for you without your guidance.

9. Scream about high medical society dues and forget that our friends in the trades unions demand many times what we pay: in other words, make the situation as difficult as possible, then grumble about it.

10. Oppose any program developed by the majority of your colleagues because it demonstrates your superior wit and your general greatness.

11. Remain superbly and learnedly dignified when Joe Doakes asks why you oppose state medicine. Brush him aside with any insult you can think of.

12. Don't bother to use the selling methods which actually bring messages before the public. Continue to depend on occasional radio feature programs. Billboard advertising, newspaper advertising, national magazine advertising, radio advertising and above all, continuous and daily radio spot programs over national hookups and all such like are too commercial, too troublesome, to expensive and too undignified: don't use them.

13. Above all, disregard the "little guy"—the one with a vote. Tell him nothing; push him around. He doesn't know anything anyhow.—A.M.A. Secretary's Letter, November 29, 1948.

SURGERY OF THE VEINS OF THE LOWER EXTREMITY

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RAPID STRIDES have been made in recent years in the treatment of diseases of blood vessels. The surgery of arteries has received most of the attention in the surgical literature, whereas that of the veins has been neglected somewhat. The apparent lack of interest in this branch of vascular surgery, despite the frequency of disorders of the veins of the lower extremity, is perhaps due to the fact that the results of treatment of conditions involving them have been, for the most part, unsatisfactory. Furthermore, practically any major vein with the exception of the superior vena cava, the inferior vena cava proximal to the renal veins, the portal vein and the right renal vein may be interrupted without serious consequences, whereas the viability of a part supplied by a major artery is so dependent on the arterial blood supply that naturally much interest has developed in maintaining it.

The veins of the lower extremity consist of three separate groups.

1. The superficial veins, which lie between the skin and the deep fascia in the subcutaneous tissues. These consist of the internal or long saphenous vein, which runs upward in front of the internal malleolus along the inner side of the leg, passing behind the inner side of the knee and continuing up the thigh to enter the fossa ovalis just below the inguinal ligament to join the common femoral vein. The external or short saphenous vein extends from just below the external malleolus up the outer side of the ankle and along the mid-line of the calf, passing through the deep fascia usually near the lower end of the popliteal space to join the popliteal vein behind the knee. These two systems of veins intercommunicate through numerous of their branches, so that frequently pathological conditions of one may involve the other.

2. The deep veins of the lower extremity consist of the common femoral, superficial and deep femoral veins in the thigh. In the lower leg the posterior tibial, anterior tibial and peroneal veins join to form the popliteal vein at the knee.

3. The communicating system of veins. There are numerous communicating veins, which connect the deep system with the superficial ones. Normally these vessels contain valves which permit blood to flow only from the superficial to the deep system. The superficial and deep veins also contain valves at frequent intervals which normally permit blood to flow towards the heart.

The most common diseases involving these blood vessels are: (1) varicose veins of the superficial system; (2) thrombosis of the superficial or deep systems; (3) postthrombotic sequelae of the lower extremity secondary to incompetency of the venous valves of the superficial, deep and communicating systems of veins.

Varicose Veins

Varicose veins of the lower extremity are probably one of the most common of human ailments. The most frequent symptoms referable to varicose veins are pain, dermatitis, ulceration, faintness due to the reduced circulating blood volume when the patient assumes an erect position because of pooling of the blood in this large stagnant venous reservoir, and, finally, the cosmetic appearance, considered by some female patients as a very important symptom. Varicose veins of the lower extremity develop because of dilatation —that is, an increase in the diameter—of the saphenous vein from the hemostatic pressure of blood resulting from man's erect position. This results in incompetency of the venous valves, due to incomplete apposition of the valve leaflets since they do not increase correspondingly in size. The process, as a rule, commences in the upper portion of the thigh at the saphenofemoral junction and extends distalward. If treatment is not instituted the whole system of superficial veins may become varicosed in time because of the lack of support from the fascial covering, such as encases the leg, which prevents the deep veins from dilating.

A number of tests have been devised to de-

From the Department of Surgery, Massachusetts General Hospital.

Oration given at twenty-sixth anniversary meeting of Minneapolis Surgical Society, March 16, 1948.

termine which system of veins is involved in a given case of varicose veins. The most useful one of these is the so-called Trendelenburg or tourniquet test. The author's modification of this test is performed by having the patient lie down. The extremity is elevated to empty the veins of blood, then a rubber venous tourniquet is placed around the leg just below the knee (Fig. 1). The patient then stands erect. Careful observation of the veins distal to the tourniquet is made. If slow filling of them with blood occurs before removing it and rapid filling after it is removed, the varicosities for the most part are due to incompetency of the superficial system of veins. Another satisfactory method of testing this system of veins is by finger pressure over the internal saphenous vein at the knee and the external saphenous vein in the popliteal space. It is possible by this means to determine whether one or both of these veins is incompetent. If the veins fill rapidly as soon as the patient assumes the erect position with the tourniquet placed below the knee, it is proof that the deep and communicating systems of veins have incompetent valves. As a rule when this observation is made it will be found frequently that the superficial system is incompetent as well. A previous history of a deep venous thrombosis of the extremity is usually obtained with these findings.

Fig. 1. Tourniquet test to determine the competency of the valves of the superficial, deep and communicating systems of veins. The absence of filling of the varicose veins distal to the tourniquet indicate the valves of the deep and communicating veins are competent, and that the varicose veins are the result of incompetent valves in the saphenous veins. (See Fig. 4A for the extent of the varicose veins.)

Treatment

Numerous forms of treatment for varicose veins have been devised. It appears from the surgical literature that one method is in vogue for a short period of time and then is discarded for another. In fact the treatment has apparently gone around in circles, coming back many years later to one of the earlier forms of treatment. For example, at the Massachusetts General Hospital from 1835 to 1845, numerous patients were admitted to the surgical wards for the injection of their varicose veins with a solution of ferric chloride. The results of this form of therapy were never published and presumably it was abandoned because of serious complications. This treatment apparently was then discarded but rediscovered around 1925 to 1930 and it again became the recognized form of therapy, except a different type of sclerosing solution was used.

In the early part of this century various types of surgical operations were devised. The most commonly practiced one was called the stripping operation. Babcock[2] devised an intraluminal type of stripper, whereas Mayo[13] described a perivenous type. Both had their advocates but the intraluminal type has proven to be the more effective. This form of therapy was discarded in the late 1920's because of a definite mortality rate from sepsis and pulmonary embolism, and the introduction of the injection therapy which could be performed on the ambulatory patient without hospitalization. It soon became apparent that this treatment was unsatisfactory from the patient's point of view because of the high incidence of recurrence of the varicose veins. In addition the treatment was unsatisfactory in many cases because of the discomfort and incapacitation to the patient. Due to the temporary benefit from this form of therapy, a high interruption of the saphenous vein at the saphenofemoral junction with a retrograde injection of a sclerosing solution at the time of the operation then came into vogue. Many surgeons still perform this type of procedure, but it also has been found to

be inadequate because of a high recurrence rate and in some cases deaths have occurred due to the production of deep venous thrombosis with secondary pulmonary embolism. The recurrences

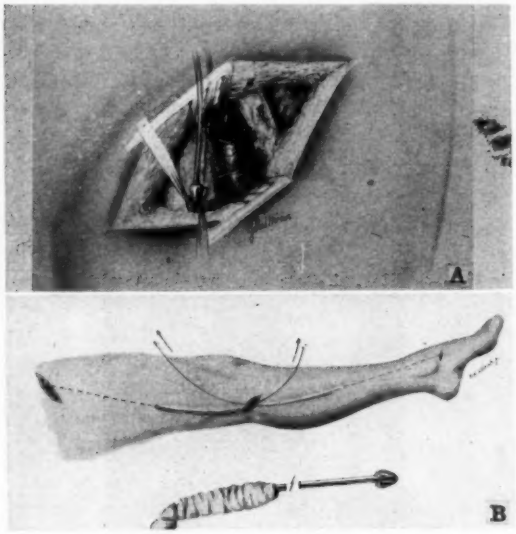

Fig. 2. The technique of stripping the internal saphenous vein. (*a*) The vein has been ligated and divided at the sapheno-femoral junction. (*b*) One stripper is passed distalward to the knee level and this section stripped from above downward after ligating the vein to the stripper at the proximal end. A second stripper is inserted upward from the ankle, and the vein in the lower leg is stripped up to the knee. The inset shows the saphenous vein folded accordion-like on the stripper. Large varices often invert in stripping, in which case they are more likely to break, necessitating additional incisions.

following this form of treatment occur chiefly because the sclerosing solution for the most part produces only a thrombus which later absorbs and the vein canalizes. In addition to thrombosing the superficial system of veins, frequently the communicating veins also are thrombosed. Edwards[6] has pointed out that the venous valve is damaged by venous thrombosis and becomes incompetent following canalization of the vein so that frequently the recurrences have been found due to the incompetency of communicating veins which, prior to the retrograde injection, had competent valves.

Because of these disadvantages in the treatment of varicose veins by injection, and the ligation and retrograde injection methods, a combination of ligation and stripping of the main trunk or trunks of the internal and external saphenous veins has been performed during the past decade in our clinic for patients with varicosities of the superficial veins. The procedure has been performed in over 500 patients without a death and deep thrombosis occurred only in one patient. The operation is performed under a general anesthetic, preferably ether, because it is a safe anesthetic. Since varicose veins are rarely a lethal disease, the safest method of anesthesia should be utilized. The internal saphenous vein is isolated, ligated and divided at the saphenofemoral junction proximal to its upper tributaries. An intra-

Fig. 3. Postoperative dressing. Small dressings are applied to the incisions, then a large gauze roll is held in place with three strips of adhesive tape over the course of the internal saphenous vein. The extremity is then wrapped snuggly with two 4-inch elastic gauze bandages from the toes to the groin to control bleeding from the tributaries of the saphenous vein. The bandages and gauze roll are removed in forty-eight hours.

luminal type of stripper is inserted into the proximal end of the internal saphenous vein and passed downward to just below the knee. The internal saphenous vein is then exposed just distal to the internal malleolus and another intraluminal stripper passed upward (Fig. 2). Occasionally it will go up a second trunk, which may extend as far as the upper third of the thigh. The vein is tied to the end of the stripper and then it is pulled out along with the stripper. It is preferable to strip the thigh section from the groin to the knee and the lower leg portion from the ankle to the knee. The patient is always in Trendelenburg position during the stripping procedure; that is, the feet and legs are at a higher level than the heart, to reduce the venous pressure and thereby minimize the bleeding from the tributaries of the main saphenous trunks which are torn but not ligated. If the vein breaks during the stripping process it may be necessary to make additional incisions to complete the removal of the veins. If the external saphenous vein is incompetent, the patient is placed in the prone position and the vein exposed just behind the external malleolus. The stripper is inserted from below upward to the popliteal space. Then through a transverse incision the proximal end of the main trunk is isolated be-

neath the popliteal fascia. It is ligated and divided at the saphenopopliteal junction. Great care should be exercised not to damage the posterior tibial and peroneal nerves, especially with metal retractors, while performing this part of the procedure. The distal end of the vein is tied to the stripper and the vein removed by stripping from the ankle to the popliteal space. The popliteal fascia should be sutured carefully to prevent herniation of the politeal fat, which, if it occurs, is very unsightly, especially in a woman's leg. A pressure dressing, consisting of a large gauze roll held in place over the course of the internal saphenous vein with a few strips of adhesive tape, is applied and then the leg bound with an elastic bandage from the toes to the groin (Fig. 3). The patient is made ambulatory on the first postoperative day, walking at least five minutes every two hours. The pressure dressings are removed on the second postoperative day and the patient may go home or remain in the hospital a few more days to have the skin sutures removed. The patients are not allowed to sit in a chair except for very short periods of time for at least a week following the operation because of the danger of deep venous thrombosis following the operative procedures on the lower extremities. Since all the dilated tributaries of the saphenous vein are not removed by this process of stripping, it is necessary to supplement this form of therapy with a few injections of a sclerosing solution. This is done in the office following the recovery from the operation.

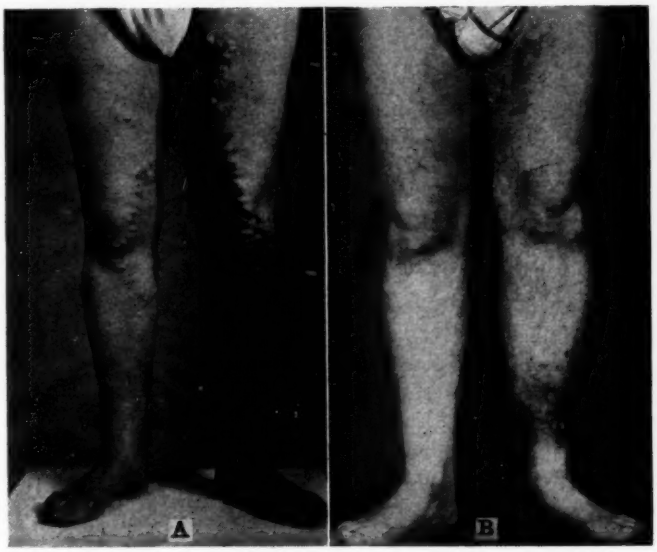

Fig. 4. (*A*) A preoperative photograph showing bilateral varicose veins of the internal saphenous system of veins. The large tortuous variety in the left leg is not the main saphenous but an enlarged tributary. Note the pigment changes in the skin of the left lower leg in which previous ulcerations had developed.

(*B*) A postoperative photograph showing the same extremities 18 months after operation. The large tortuous varicosity in the left leg was excised in the thigh through three small transverse incisions since it is impossible to strip this type of vein because of its tortuosity and the fact it is so adherent to the skin. In addition the long saphenous veins were stripped from the groins to the ankles. One injection of a sclerosing solution was given postoperatively, in the right leg and four in the left leg. Note the absence of varicose veins and the improvement in the pigmentation of the skin of the left lower leg.

The results of this type of therapy have been very gratifying (Fig. 4) but no patient is promised that his varicose veins will be cured. He is warned that others may develop, which may need subsequent injection. An occasional patient with recurrent or persistent varicose veins will be found in which a second trunk of the internal saphenous vein or an incompetent external saphenous vein has been overlooked, in which case

another surgical procedure should be performed to remove these vessels.

Deep Venous Thrombosis of the Lower Extremity

Thrombosis of the deep veins of the lower extremity is a serious complication which develops most frequently after major surgical operations, trauma to the lower extremity, pregnancy, and serious illnesses such as heart disease, pneumonia, and typhoid fever. The relationship of deep venous thrombosis to pulmonary embolism has long been established. In 95 per cent of the cases it is believed approximately all pulmonary emboli can be traced to the leg veins.[7] Early ambulation and the use of the anticoagulants, dicumarol and heparin, are effective measures to prevent this condition. The accepted method of treating deep venous thrombosis in our clinic at the Massachusetts General Hospital once it has developed is to interrupt the femoral veins in the groin. We believe that if a diagnosis of deep venous thrombosis of the lower extremities is made, or if a patient has had a non-lethal pulmonary embolus, irrespective of whether or not the legs show signs of venous thrombosis or phlebitis, this is the best method of therapy.[1] It prevents further embolisms in the majority of cases and at the same time it protects the extremities from the post-thrombotic sequelae seen so frequently in the patient who has not had the femoral veins interrupted.

This method was first described by Homans[8] in 1934. During the past decade we have interrupted the femoral veins in 2,131 patients up to January, 1948. No serious sequelae have resulted from the operation and only in a few instances has an ulcer developed in the extremity. It is believed many lives have been saved and the morbidity of the disease greatly reduced. The operation of femoral vein interruption is a surgical procedure which can be performed readily, using local infiltration of a 1 per cent procaine solution. It is imperative, however, that the surgeon should be thoroughly familiar with the surgical anatomy of the blood vessels in Scarpa's triangle. The common femoral vein is a continuation of the external iliac vein. It extends distalward from the inguinal ligament for about 5 to 7 centimeters, where it bifurcates into the superficial femoral vein and the deep femoral vein. The former extends down Hunter's canal with the superficial femoral artery to become the popliteal vein and the deep femoral drains the blood from the posterior muscles of the thigh. The internal saphenous vein is the most proximal tributary of the common femoral vein and between it and

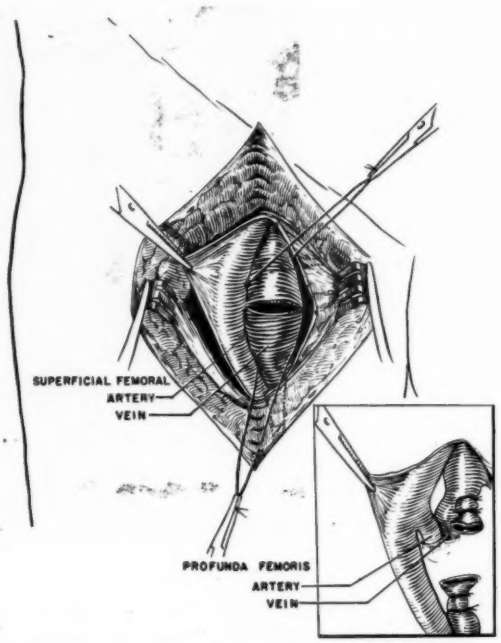

Fig. 5. Interruption of the superficial femoral vein. This artist's drawing shows the exposure of the right superficial femoral vein using a vertical incision, the upper end commencing at the groin crease. The dilatation of the vein localized the junction of the superficial and deep femoral veins. The femoral artery is retracted lateralward. The incision in the vein is indicated and should always be transverse. The inset shows the divided superficial femoral vein with both ends doubly ligated. The ligatures on the proximal end should be placed as close to the deep femoral vein as possible so that a blind segment of vein is not formed in which a secondary thrombus may develop and from which a pulmonary embolus might occur.

(Courtesy Mason, Robert L., and Zintel, H. A.: Preoperative and Postoperative Treatment. By permission of W. B. Saunders Company, publishers, Philadelphia.)

the origin of the deep femoral vein several other vessels arise from it, the largest of which are the medial and lateral femoral circumflex veins.

The common femoral vein should never be interrupted proximal to the saphenofemoral junction, nor should it and the internal saphenous vein be interrupted in the same extremity. This is because the collateral circulation at this level in some patients is so meager that serious results to the extremity have been observed and reported, one by Dennis[5] when the interruption was at this

level. Interruption of the superficial femoral vein just distal to the origin of the deep femoral has been found to be the safest level to interrupt the deep venous system in this region (Fig. 5). This is the routine procedure in our clinic if there is no thrombus encountered and if the patient can become ambulatory immediately after it is performed. If a clot is found in the common femoral it is better to interrupt the common femoral distal to the sapheno-femoral junction and proximal to the deep femoral vein (Fig. 6). This is a more difficult interruption because of the tributaries arising from it, which in most instances must be ligated separately, to give sufficient length of common femoral vein to safely ligate and divide. However, it protects the patient from emboli which may arise from the deep femoral vein, a distinct possibility if a thrombus was found proximal to it. The clot should be removed both distal and proximal to the opening made in the common femoral vein (Fig. 6) by aspiration. From experience it has been found that this can be accomplished readily if the venous thrombosis has been detected early so that the patient's thigh has not been swollen for more than forty-eight hours. If it has been for a longer period, the clot will be found so adherent that it will be impossible to remove it. Under these circumstances if the patient has had a pulmonary embolus a more proximal interruption of the venous system at the level of the inferior vena cava should be performed. If no embolism has occurred, conservative measures are recommended.

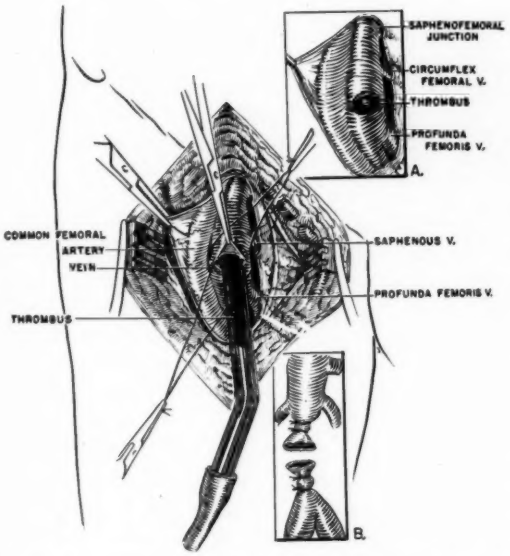

Fig. 6. Interruption of the common femoral vein with thrombectomy. An artist's drawing to show the exposure of the right common femoral vein. The upper end of the incision should be 2 cm. above the groin crease. The femoral artery is retracted lateralward. Two untied ligatures have been placed around the vein to control the bleeding after thrombectomy. The thrombus is removed by aspiration through a glass cannula. The proximal segment is always aspirated first. Inset A. shows the thrombus protruding through the transverse incision in the vein. Inset B. shows the completely divided vein with both ends doubly ligated with non-absorbable ligatures. The division is above the junction of the superficial and deep femoral veins.

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The following practical suggestions concerning femoral vein interruption are worth enumerating: The incision should be a vertical one over the course of the great vessels in Scarpa's triangle (Figs. 5 and 6). Serious injury to the femoral artery has occurred in other surgeons' hands when this cardinal principle has not been followed because of the difficulty in obtaining adequate exposure of sufficient length of these large blood vessels. Two traction ligatures should be placed around the femoral vein before it is opened in order to control the bleeding. The femoral artery in patients subject to this disease, since they are usually over forty years of age, is a friable structure. For this reason it should not be freed up and retracted with a rubber tube because this may be sufficient trauma to fracture its wall to produce arterial thrombosis with resulting gangrene of the extremity. It should be retracted by traction on the periarterial tissues (Figs. 5 and 6). It is recommended that ligation and division of the femoral vein is preferable to ligation in continuity. This should be performed by ligation of each end with a primary ligature of non-absorbable material such as cotton or silk and a secondary transfixion ligature of the same material in the cuff of the vessel distal to the former.

Interruption of the venous system at a higher or more proximal level is indicated in a few instances. This may be done by ligation of the common iliac veins or the inferior vena cava distal to the renal veins. The latter is more practical since the large veins from both the lower extremities and the pelvis may be interrupted by ligation of this single large blood vessel. In

addition it can be performed through one incision, whereas bilateral common iliac vein interruptions necessitates two separate incisions, one in each lower quadrant.

centimeters above the umbilicus is recommended for ease of exposure. The rectus muscle is retracted lateralward, the peritoneum with its contents and the ureter are retracted medialward to

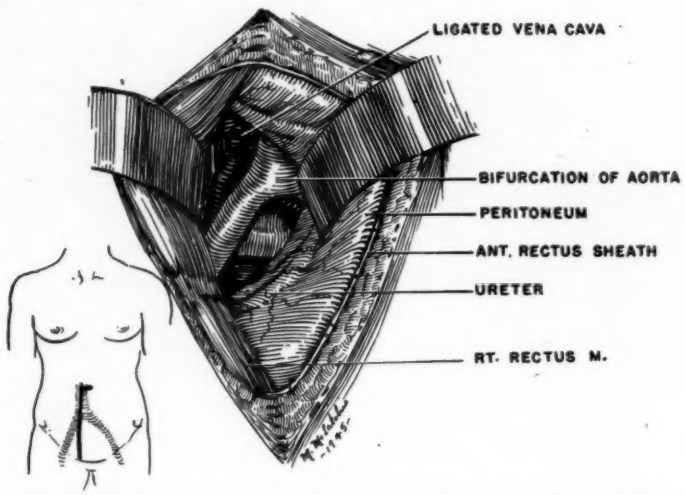

Fig. 7. Interruption of the inferior vena cava. An artist's drawing to show the extraperitoneal exposure and ligation in continuity of the inferior vena cava using a right paramedian incision. The rectus muscle is retracted lateralward and the ureter, peritoneum and its contents medialward. The incision extends from the pubis to about 5 centimeters above the umbilicus. For ligation, we use two non-absorbable ligatures of silk or cotton.

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Ligation of the inferior vena cava in our clinic is restricted to a few patients. It is recommended: (1) in those patients who develop septic non-fatal pulmonary emboli arising from a septic thrombophlebitis of the pelvic veins; (2) in those who have had femoral vein interruption and dicumarol therapy but continue to have pulmonary emboli; and (3) in a rare instance of phlegmasia alba dolens complicated by non-lethal pulmonary embolism. It has been performed on sixteen patients in our clinic during the past ten years. When compared to femoral vein interruptions in 2,131 patients during the same period, the relative infrequency of it in our clinic can readily be seen. In a few instances of fatal pulmonary embolism following femoral vein interruptions, it is believed that the lives of some of these patients could have been saved by the timely interruption of the inferior vena cava. An extraperitoneal exposure of it is preferable to a transperitoneal one because it produces less surgical shock. A long right paramedian incision extending from the symphysis pubis to about 5 expose the bifurcation of the inferior vena cava (Fig. 7).

Interruption of it is performed by double ligation of it with strong non-absorbable material such as braided silk. The vessel is so large in diameter it would require freeing up too great a length of it to permit a safe ligation and division. Large veins in contradistinction to large arteries may be safely ligated in continuity, since their walls are less friable and the intraluminal pressure is much less. No serious sequelae have developed in our patients following inferior vena cava interruption, but it is believed the ones that have had it performed should be followed for a longer period before recommending the procedure except in the rare instance as already described. It should be pointed out that it is a major surgical operation compared to femoral vein interruption, and may carry a considerable mortality rate as evidenced by the results of Thebaut and Ward[14] who reported four operative deaths in thirty-six patients, a mortality rate of 11 per cent. When these figures are compared

to 2,131 patients who have had femoral vein interruptions in our clinic without a single operative death, it is obvious that this latter procedure is preferable in the average case of venous thrombosis of the deep veins of the lower extremities.

Postthrombotic Sequelae of the Lower Extremity

The most common postthrombotic sequelae of the lower extremity in order of frequency seen in eighty-four extremities were edema, varicose veins, pain, stasis dermatitis, stasis cellulitis and chronic ulceration. The treatment of these sequelae has baffled the medical profession for many years. None of them is a serious threat to the life of the patient, but many fortunes have been spent on inadequate treatment with little or no lasting benefit. The morbidity of them is high and if it were possible to estimate the time lost from work due to them it would undoubtedly be stupendous. It is believed, therefore, that radical surgical treatment, if it has any possibility of curing these conditions, should be performed.

The observation has been made that the postthrombotic sequelae except for pain and edema as a rule do not develop until the deep veins of the leg have canalized. Ulceration may occur even within a year of the original deep venous thrombosis but not before canalization of the deep veins. The observation that only in a rare instance, following therapeutic or prophylactic interruption of the femoral vein for thromboembolic disease, have the post-thrombotic sequelae developed, in approximately 2,000 patients who have had one or both femoral veins interrupted at the Massachusetts General Hospital in the past ten years, led the author to believe that interruption of this vein distal to the profunda femoris branch might benefit the postthrombotic sequelae. Buxton and Coller[3,4] and Homans[9] have also recommended this procedure. It is believed, however, in addition to interruption of the superficial femoral vein, the incompetent internal and external saphenous veins should also be removed by the method of stripping as already described. This form of treatment is recommended chiefly in those patients with early post-thrombotic sequelae, namely, pain, edema, varicose veins and beginning stasis dermatitis and was previously reported.[11] If, on the other hand, the condition has been long standing so that the extremity in addition presents marked dermatitis, stasis cellulitis and chronic ulceration, a still more radical form of surgical treatment may be indicated.

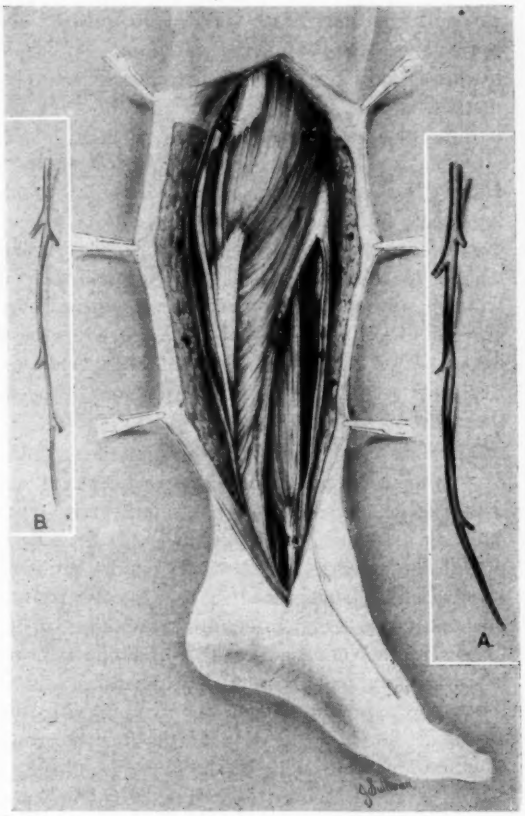

Fig. 8. Ligation of the communicating veins, excision of internal and external saphenous veins and fasciectomy. A longitudinal incision about one centimeter posterior to the tibia is made on the inner side of the lower leg from the knee to just below the internal malleolus. The medial group, or posterior tibial communicating veins, are ligated and divided. The deep fascia is divided at the posterior edge of the tibia to expose the internal saphenous vein, which is removed (*A*). The external saphenous vein is exposed by incising the deep fascia of the posterior skin flap and it also is excised (*B*). The sural nerve is carefully preserved. The saphenous nerve is usually removed with the internal saphenous vein. A large window of deep fascia is excised from the posterior flap. This gives lymphatic drainage to the subcutaneous tissues and permits easier closure of the wound. Interruption of the superficial femoral vein, ligation of the long saphenous vein at the sapheno-femoral junction and the stripping of it to below the knee should be done to complete the operative procedure in cases of post-thrombotic ulcers and induration of the lower leg. The ulcerations must be healed before performing this type of procedure.

Homans,[10] in 1917, described the method of excision of the chronic ulcer and most of the diseased skin around it, carrying the dissection

through the deep fascia down to muscle and periosteum, then applying an immediate split thickness skin graft to the raw surface. This method is still useful in some of the very old chronic ulcer cases but it leaves much to be desired as far as the cosmetic result is concerned, and in the cases in our clinic where this alone has been utilized, only 50 per cent have been cured. Interruption of the superficial femoral vein in these extremities has been found to be a valuable adjunct to this form of treatment. Recurrent ulcerations following the procedure have healed after superficial femoral vein interruption so it is now performed at the same time as the excision of the ulcer and the skin graft.

The author,[12] in 1938, described another method of treatment for this type of case which does not disfigure the extremity to the same degree as the excision and skin graft method. It has been modified somewhat since then with more satisfactory results. The procedure that is now recommended consists of interruption of the superficial femoral vein distal to the profunda femoris branch, ligation of the internal saphenous vein at the sapheno-femoral junction, stripping of this vessel in the thigh, ligation of the medial group of communicating veins of the lower leg through a long veritical incision extending from the knee to just distal to the internal malleolus, excision of the deep fascia on the posteromedial aspect of the lower leg and excision of the internal and external saphenous veins in the lower leg (Fig. 8). In order to prepare the extremity for this procedure, the ulcer is first healed, utilizing elastic adhesive bandages or an Unna's boot type of bandage. These are changed at weekly or biweekly intervals depending on the size of the ulcer. When the ulcer is epithelialized the patient is admitted to the hospital, where with bed rest and elevation of the extremity the condition of the skin is further improved. The operation is done under the protection of penicillin. Ether or spinal anesthesia is used. The femoral and saphenous veins are first interrupted in the groin, and the latter stripped down to just below the knee. The long vertical incision about 1 centimeter posterior to the tibia is carried down through the deep fascia. The large incompetent communicating veins arising from the posterior tibial vein are ligated and divided. The dissection is carried anteriorly over the tibia severing the attachment of the deep fascia to the bone. The internal saphenous vein is readily seen through the deep fascia. It is excised completely from the upper to the lower end of the incision by incising the deep fascia. The posterior skin flap is then raised and the short saphenous vein similarly removed. As large a section as possible of the deep fascia in the posterior skin flap is then excised. Care is taken to leave a small rim of it on the wound edge to aid in closing the wound with a layer of subcutaneous fascial sutures of fine chromic catgut. The sural nerve lying parallel with the external saphenous vein is preserved carefully. The excision of the deep fascia has a two-fold purpose. It permits closure of the long incision without tension and it reduces the amount of edema in the lower leg by giving better lymphatic drainage to the skin and subcutaneous tissues similar to the Kondoleon type of operation. After closure of the skin with fine interrupted silk sutures, a large gauze dressing is applied and outside this a plaster cast from the toes to the knee with the foot in ninety degrees dorsiflexion. Penicillin is continued postoperatively for five to seven days. The first dressing is done in ten days and if primary healing is obtained the patient is discharged home approximately two to three weeks after the operation with an elastic adhesive bandage over a large gauze dressing from the toes to the knee. This type of dressing is used for several weeks and then replaced with an elastic stocking or bandage until the edema has disappeared from the extremity. This may require from three to six months. The results by this method of therapy in the chronic indolent post-thrombotic ulcer cases have been found to be extremely gratifying both from the cosmetic standpoint and the healing of the ulcer.

Conclusions

1. The most common conditions of the lower extremities resulting from pathology of the veins are varicose veins, deep venous thrombosis and the post-thrombotic sequelae.

2. The surgery of these conditions, as performed in the Peripheral Vascular Clinic of the Massachusetts General Hospital, is reported.

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(Continued on Page 53)

THROMBOEMBOLISM AND THROMBOPHLEBITIS

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THIS SUBJECT of thromboembolism and thrombophlebitis has received such recognition in the medical press the past two years that one can hardly pick up one of the better medical journals without finding an article on it. Many of these have been written by men of wide experience, and regardless of what one's own experience or opinions may be one must stop and consider the subject in the light of their reports.

There are few of us who cannot recall the sad details of the doctor's mother who went to a large clinic to have a hysterectomy by the best man obtainable and who died of a massive pulmonary embolus as she got out of bed on the ninth day postoperative, or the fine wife of one of one's best friends who had a similar accident after a simple ovarian cyst resection, or the man with a hernia to whom one said, "Don't worry, it is very simple and you have nothing to worry about at all. In fact it will be just a good rest in bed with pretty nurses about you." But he died of the embolus just as you left the room, having told him to "go on home and have a good time." Or the executive, fifty-five years old, who was advised to take a few days' rest in bed at home after overwork, but who had his embolus while reclining on the cot in the sun parlor. These occurrences come from my own personal experience, and the patients are just as *dead* as though they had been shot with a rifle.

Both clinically and pathologically phlebothrombosis and thrombophlebitis are in a sense one and the same thing. They both mean a closure of the vein lumen with a blood clot.[2,18] It is just a question of the degree of the inflammatory phase of the condition present. Phlebothrombosis means just a closure of the vein with a simple blood clot like a post mortem clot. It is not fixed to the vein wall at all and stays in position only because of the stagnation of the blood stream and the branching of the veins. On the other hand thrombophlebitis means that there is an inflammatory phase present and because of this the thrombus is fixed and adherent to the wall of the vein so that seldom does it break loose and cause an embolus. This happens only as the inflammatory part of the picture disappears and the thrombus terminates in the simple red clot. In the presence of stagnation this may extend far along the vein and thus gradually pass over into the phlebothrombosis and it is this part that gives the embolus. You may say that this is "splitting hairs in diagnosis" yet that is just what we are trying to do. The true phlebothrombosis carries a very high incidence of mortality.[12,15] The true and marked case of thrombophlebitis has a very low one.[11] On the other hand, it causes much morbidity and oftentimes results in crippling for life.

There seems to be a very marked difference in the experience and opinion of the doctors in this area and of those in Boston. Much of the work and many of the opinions reported by various surgeons over the country reflect the influence of the Boston group.

The author, fully realizing how meager has been his experience as compared with that of many surgeons over the country, has thought it wise to briefly summarize some of these reports.

As Dr. McCartney[15] has shown, thromboembolism occurred most often in his series between sixty and seventy years of age. At the other extreme, we find Kleinsasser's series of 502 cases, from three army vascular hospitals with 54.6 per cent of his patients between twenty and twenty-nine years.[13] This of course could be accounted for by the type of patients handled in the latter group. He further reports that 81 per cent of the patients in Stich's series were over forty years of age, 66 per cent over sixty years of age, and 20 per cent over seventy years of age. Fifty per cent of the Miller and Rogers series were over fifty years of age. Veal and Hussy[27] reported 70 per cent of their series of eighty-four patients as over forty years of age. Allen, Linton, and Donaldson[2] reported 80 per cent in their series of 367 cases over forty years. Many other series are similar.

Bed rest is a most important predisposing cause. Research by Koch has shown that there is a definite slowing of the circulation time from eighteen seconds in the youth of fifteen to twenty years of age to twenty-three seconds in the age

Presented as part of a panel discussion on this subject in cooperation with Dr. J. S. McCartney of the University of Minnesota, Department of Pathology, and Dr. N. W. Barker of the Mayo Clinic, before the Minnesota State Medical Association, Minneapolis, Minnesota, June 7, 1948.

group of seventy years. This factor is further increased with the slowing and stagnation occurring with bed rest. The best report on this was by Hunter et al. They reported on two series of 200 autopsies each. In the first series the patients had been in bed for a period of time with absolute rest and no exercise of the calf muscles. Fifty-nine per cent of these patients were found to have thrombosis as compared with only 44 per cent in the other series of 200 patients who were *really* ambulatory or had used forced leg muscle exercise in the forty-eight hours before death.

Kleinsasser reports the trauma factor as present and active in 36.5 per cent of his cases. The trauma factor is then subdivided, showing that 21.7 per cent had crushing injuries of some type.

The general sickness factor causing 18.3 per cent of the entire number is subdivided, showing 49 per cent as associated with pneumonia.

The postoperative factor was present in 14.1 per cent of them all and when this is subdivided he shows 6 per cent of the total series as post appendectomy with 2 per cent after hernioplasty.

The lower extremity was involved in 92.9 per cent of cases compared to 7.1 per cent in the upper, and the left leg more often than the right. This he explains as due to the effects of gravity causing more stasis in the lower extremity. The vena cava lies to the right of the aorta and the right common iliac artery is thought possibly to cause some pressure on the left common iliac vein as it crosses it just below the bifurcation.

The deep veins were involved more often than the superficial. Swelling was the most common of the initial symptoms (84.5 per cent), but pain was the most prominent symptom in the majority of the cases. Pain was the first symptom in 34.8 per cent though not always the most prominent. Pulmonary infarct was present in 9 per cent of all cases though the first symptom in only 6.8 per cent of the cases. At the time of admission swelling was the most prominent symptom" with cyanosis next. The most common initial treatment before arrival at the center had been bed rest with elevation and the application of some type of heat. Then came sympathetic blocks and ligations. Ligations of the great saphenous vein was most common, then the superficial femoral and common femoral. After arrival at the center the most common treatment was conservative followed by lumbar block. The results were generally fine with only a moderate amount of partial disability and only 15.4 per cent needing continued support. This is an important point too often overlooked.

No discussion of this subject could be complete without reviewing the reports of Arthur W. Allen.[1] Without calling him radical, we must say that he and his associates have taken the lead in the active treatment of this condition. The surgeons and internists of this area do not agree with his reports, but they are so extensive that they must carry great weight. Though John Homans was the first to report the ligation of the femoral vein to prevent the propagation of the clot in thrombosis and phlebitis,[2,8,9,10] Allen and his associates have popularized it almost to the point of danger. The incidence of thrombosis and embolism in their experience is very high, occurring most often postoperative in hip fractures. This occurrence is so high that they recommend a prophylactic femoral vein ligation in all hip fractures requiring operation, in all patients above sixty years of age having major pelvic and abdominal surgery, and in those aged and debilitated patients requiring prolonged bed rest. This they advise to be done bilaterally. Their statistics, with 458 similar cases cared for with prophylactic ligation, as compared with a like number cared for without, certainly are convincing.

Their records show a marked increase in the number of ligations from year to year. In the five-year period of 1937 to 1942 they ligated only 202 patients while in 1946 alone they ligated over 500 patients. Today they do a prophylactic bilateral vein ligation in 42 per cent of their cases, while they formerly did ligations only after marked signs of thrombosis or when infarct pains had developed.

Gerald Pratt of New York has tried to follow a sensible middle ground.[23] I agree with his work most fully. His work was done at the New York Post Graduate Hospital and the St. Albans Navy Hospital. This shows a report on ninety cases of massive pulmonary embolism with seventy-four deaths. Ninety per cent of his patients were over forty years of age, with 30 per cent above sixty years, 15 per cent occurring on the medical services. On the surgical service *only* he found 33 per cent after gastric surgery, 19 per cent after gall-bladder operations and 13 per cent after appendectomy.

It is often difficult in the individual case to distinguish the thrombosis and thrombitis part of

the picture. His separation of the signs and symptoms is the best I have seen, and I want to approve of his listing of them. It is important to notice that the bland thrombosis may be present with little or no symptoms while the thrombitis case shows the evidence of the presence of the inflammatory factors, pain, redness, tenderness, and swelling.

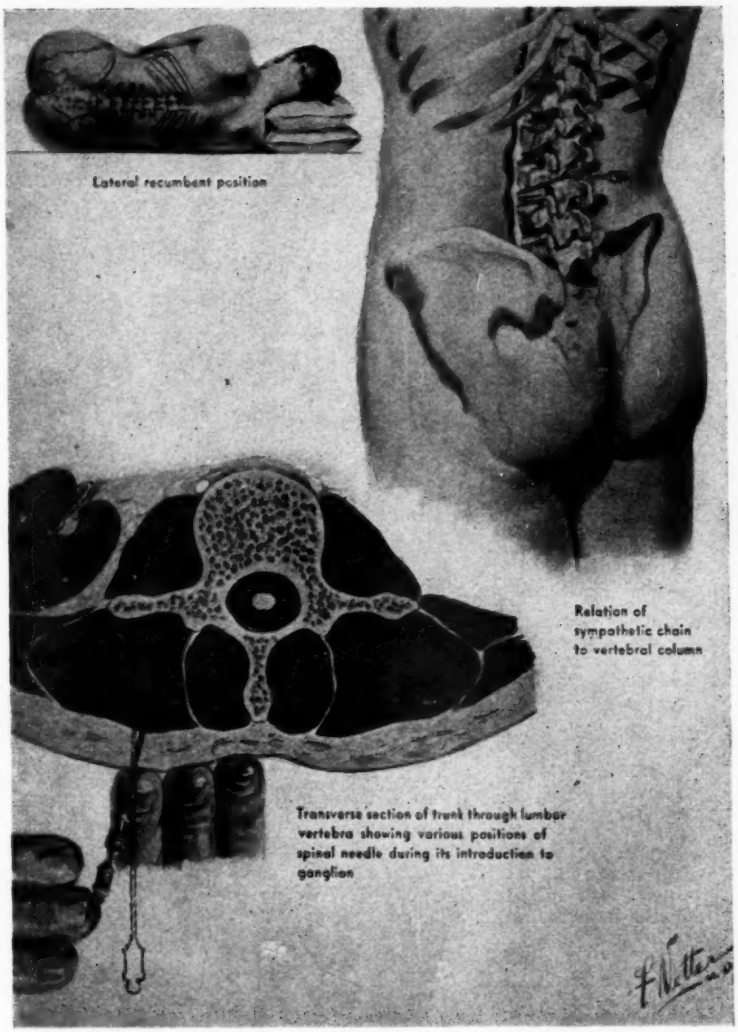
Lateral recumbent position
Relation of sympathetic chain to vertebral column
Transverse section of trunk through lumbar vertebra showing various positions of spinal needle during its introduction to ganglion

Fig. 1. Lumbar sympathetic block, after the technique of Ochsner.

Pratt does almost no prophylactic ligations. He does therapeutic ligations only when definitely indicated. Even Allen admits that he cannot tell with assurance which veins are involved so he just ligates them all. This is not logical. It may be simple for him and those well trained, but the average surgeon doing one now and then will most surely get into trouble and calamities will certainly follow. If the patient is having repeated emboli or has had a severe one and some localization can be made, then I would do a ligation. If there are no localizing signs a high vena caval ligation seems to be the only sensible thing to do. Other than this is meddlesome surgery when we have other such valuable and effective controls.[3,16,19]

In the acute thrombophlebitis case there is usually a marked reflex vasospasm.[19,20,21,22] For this condition the lumbar sympathetic block with

1 or 2 per cent novocaine is almost specific, and oftentimes the results and improvement are rapid and amazing. It should be done on every patient who shows any signs of vasospasm or pain. This is done with the Ochsner technique. I prefer to introduce the needles just a bit farther laterally. I am sure that I get better results with four needles than with one. It can be done under local anesthesia by injecting novocaine as the needle is inserted but it is much better to give some light anesthesia. It does hurt even with the best of technique (Fig. 1).

I cannot understand the lack of enthusiasm for the use of the lumbar sympathetic block in these cases. In my experience there has been complete relief or marked improvement in more than 90 per cent of acute cases. Much help is obtained even in the subacute and chronic case. Take the case of Dr. H., a dentist. This man, fifty-three years of age, had a deep femoro-iliac thrombophlebitis, of unknown cause in the left lower extremity, of eight weeks' duration. It was thought to be secondary to metastases to the retroperitoneal lymph glands. After one block and the application of routine hot packs the pain and swelling rapidly disappeared. He left the

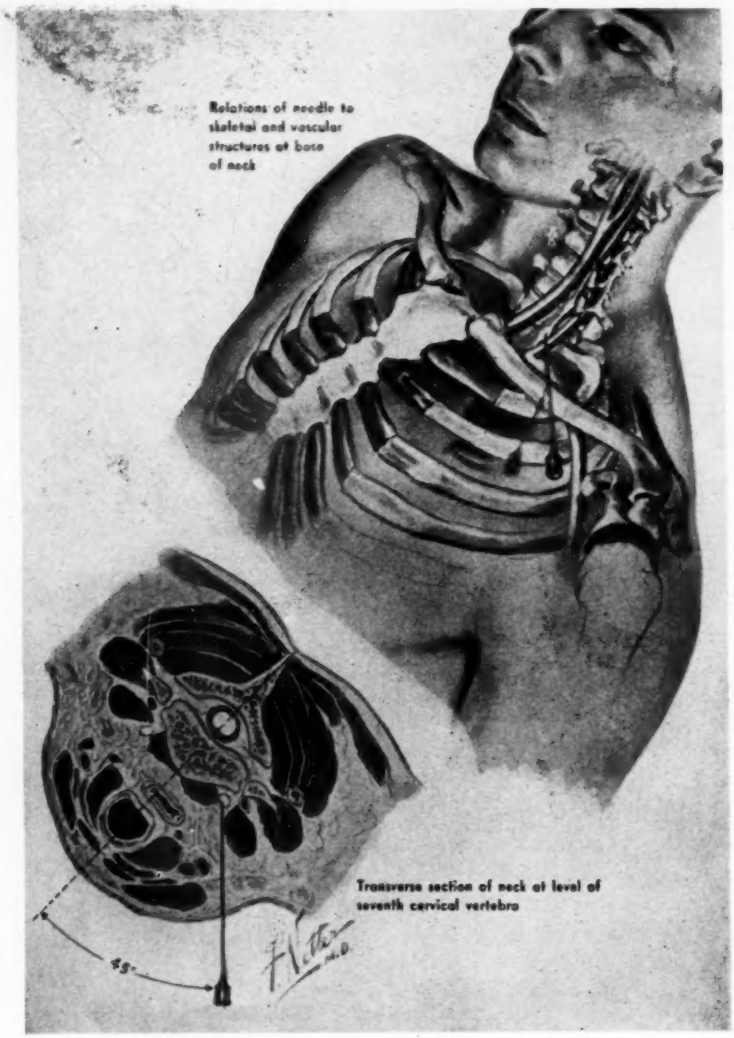
Relations of needle to skeletal and vascular structures at base of neck
Transverse section of neck at level of seventh cervical vertebra

Fig. 2. Cervical sympathetic block—Ochsner

hospital in eight days with a normal leg and the supportive bandage just for comfort. One week later he developed the same thing on the right side. The extremity was almost twice normal

The cervical sympathetic block should be used if the phlebitis has involved the upper extremity (Fig. 2).

I am convinced that the hot moist or Kenny

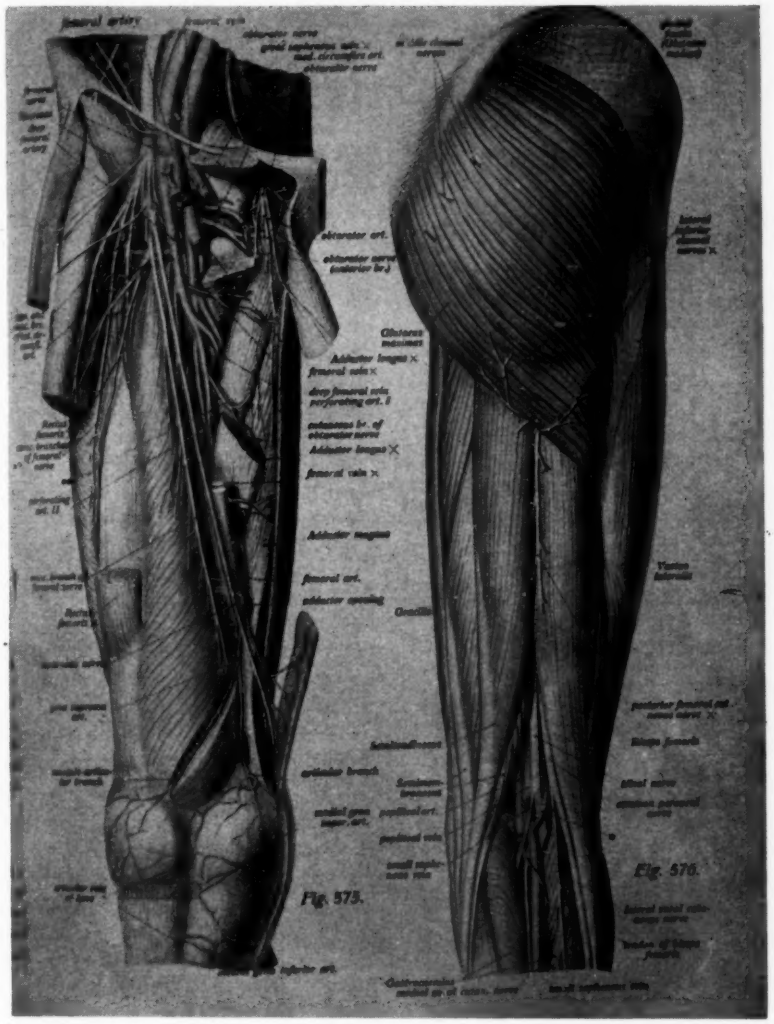

Fig. 3. Anatomy of the thigh, showing femoral veins. Taken from Sabotta anatomy.

size. Following two blocks and the routine packs it also returned to normal and he left the hospital two weeks from the date of the first block on that side with almost no swelling. I have advised him to wear a bandage just to be on the safe side.

With this same block and routine hot packs you can assure the patient, developing the usual postpartum or postoperative thrombophlebitis that he will be normal in one week.

pack is not used as often or as much as it should be for phlebitis. Unless it is well applied it is useless. If the blankets or towels are not wrung dry they are dangerous. It is the pack soaked with water that causes the burns. Carefully applied at a temperature of 125 to 130 the pack will not cause burns (See Instructions).

Research by Drinker[7] has shown that the lymphatic drainage is rapidly increased in the

presence of the hot moist pack and that the vasospasm in the tissues tends to be relaxed. The drainage rapidly increases as the temperature of the pack is increased to tolerance. The use of the hot moist pack is of so much value that it should be used as an adjunct in every case (See Instructions).

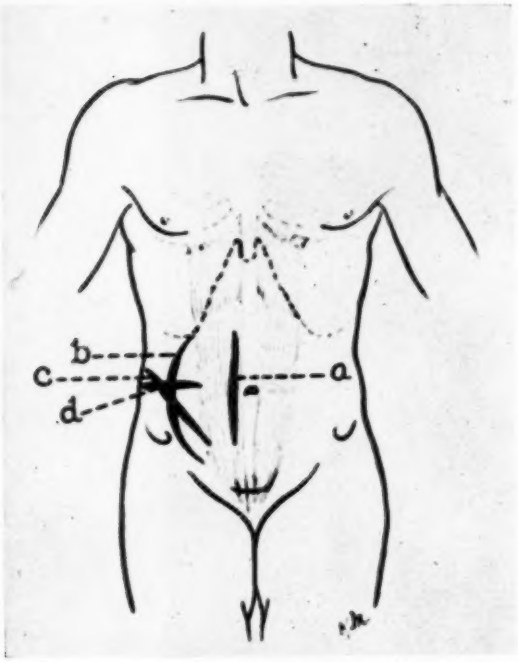

Fig. 4. Incisions commonly used in ligation of the inferior vena cava: *a*, right paramedian, for transperitoneal approach; *b*, *c* and *d*, incisions for extraperitoneal approach.

A ligation, if done, should be of the superficial femoral[14] and this just below its junction with the profunda femoris to form the common femoral (Fig. 3).[1,6,8,9,24,26] This effectively blocks the deep veins of the lower leg and at the same time preserves the collaterals to carry on. The great saphenous vein should be preserved unless it is varicosed. If so, it too should be ligated.

The ligation of the vena cava is a major operation.[27] It can be done through any of four incisions (Fig. 4). Many use the transabdominal. It is best done through the extraperitoneal approach (Fig. 4).[24] Most of this is a muscle-splitting incision with the peritoneum and ureter carried inward. Be very careful of the small veins draining into the vena cava as they can be very annoying if torn. Ligate just above the bifurcation so as to be sure and stay below the left renal vein which at times comes off low. Doubly ligate the vena cava and do not section. If you do, be sure and transfix both stumps.

INSTRUCTIONS FOR HOT PACKS

Must be bed rest. Useless to sit in a chair with the leg resting on another chair, and try to apply hot wet packs.

Body must be lying flat. Only one pillow under head.

Knee should be flexed slightly with the lower leg high on a pile of pillows 16 inches above level of mattress.

Best if the lower leg (knee to foot) is about on the level with the knee slightly flexed.

Packs should be applied at least 10 inches both above and below the area to be treated.

Temperature of packs should be 120 degrees to begin with and then increased as tolerated, preferably to 130 degrees if the patient should not object.

Fresh packs should be applied as quickly as possible at time of change to prevent the cooling of the skin.

The packs are best applied as follows:

1. Fold a blanket four times and place on top of a pile of pillows.
2. Fill the hot water bottles (several, one-half full) with hot water of right temperature. Compress the air out of the bottles as cork is tightened.
3. Wring the large bath towels and wollen blankets out of hot water. Quickly apply the wet towels, then the hot water bottles and then quickly wrap the blanket about it all and pin tightly.

If the above pack is properly applied it will stay hot for at least two hours, and it should all be changed every two hours.

Best results will be obtained if the packs are continued for not less than four hours at a time.

When the ACE bandage is used and applied it is best if the patient walks a great deal.

Pratt[23] states that of 279 major vein resections the past year 21 per cent have been that of the common femoral. In contrast to twenty-six vena caval ligations two years ago, only two were performed the past year. For thrombosis, where vein section was considered imperative, the operation was done bilaterally in only 6 per cent of his cases.

I am so much in favor of the anticoagulant treatment as advocated by Barker[3,4] and so much against the femoral, iliac and vena caval ligations so frequently done that I would like to present a brief summary of Gordon Murray's article. It will convince the most obstinate holdout that the use of the anticoagulants should be the first thought in all these conditions.

Gordon Murray[6] of the Toronto General Hospital, has reported on 400 postoperative patients treated with anticoagulants. None developed thrombosis or pulmonary embolisms.

He further reported on 371 patients with venous thrombosis. All had typical symptoms and

signs of venous thrombosis. None developed pulmonary embolism.

Another group of 149 patients with definite pulmonary embolism were treated by the anticoagulants. These cases were not selected. Fifty-two of them were very seriously ill and in shock when first seen. Even though the statistics show that one in five of all individuals surviving the first pulmonary embolus will die of a later one, no deaths from pulmonary emboli were noted in the entire series where he had control of the dosage and care. No ligations were done in any of these cases.

Conclusions

1. Intravascular thrombosis and clotting can be prevented by the use of the anticoagulants, heparin and dicumarol.

2. If thrombosis and clotting have occurred, anticoagulants in appropriate doses will prevent further extension of the process.

3. If a patient is adequately treated with anticoagulants following pulmonary embolism, the chances of survival are excellent.

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THE PAPANICOLAOU METHOD OF CANCER DIAGNOSIS

An Evaluation

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As early as 1923, Papanicolaou, in the course of "a systematic study of human vaginal smears, became aware of the diagnostic potentialities of the vaginal smear in malignant lesion of the uterus." In 1928, he briefly reported these observations. While he continued with the investigation, nothing was again heard from him until 1941, when he and Traut published a paper, "Diagnostic Value of Vaginal Smears in Carcinoma of Uterus." Two years later, their classical monograph entitled "Diagnosis of Uterine Cancer by Vaginal Smear," appeared. This book, copiously and beautifully illustrated, gave, in detail, the method of preparation of the vaginal smear, the classification and identification of various cell types found in the vaginal flora and the description of the exfoliated cancer cells. The Papanicolaou method of cancer diagnosis was thus introduced to the medical profession. In the meantime, a few investigators, notably, Meigs and Ayrs, who early saw a diagnostic possibility in the method, undertook a systematic study of routine vaginal smears in large series of cases, with surprisingly gratifying results. Their enthusiastic reports encouraged clinicians and surgical pathologists, here and there, throughout the country, to follow their lead. Papanicolaou, himself, has conducted a class from time to time, to teach the method and popularize it, which has resulted in the popular acceptance of this method as an aid in cancer diagnosis in qualified hands.

However, many conservative leaders in the field of pathology who direct the minds of the average practicing pathologist, have taken a wait-and-see attitude and have been somewhat hesitant to wholeheartedly endorse the Papanicolaou method of cancer diagnosis as being worthy of adoption in routine work. They seem to view it with the academic interest of a skeptic, rather than with the open and practical mind of a clinical pathologist. They emphasize their preference for the older, more positive and reliable, though less spectacular, biopsy procedure, on the ground that the latter is a tried and established institution, not to be intruded by a seemingly questionable method of diagnosis by cell morphology alone, a practice so long frowned upon by them, as unscientific and inaccurate. They probably see a parallel between it and the interesting observations of MacCarty's on the malignant cell, although the latter was dealing with the individual cells of fresh unfixed tissue. They are apprehensive, too, lest the new technique should replace the biopsy in cancer diagnosis, and thus the universal demand for its use to the practical exclusion of the more reliable histologic method of diagnosis might result. Furthermore, they are fearful lest the cytologists and technicians who are being taught to do the preliminary screening of the smears, might be encouraged to venture into the field of cancer diagnosis. Unfortunately, too, the popular acclaim given the method, through the medium of lay magazines, has tended to discredit its scientific value. The proposition that it might be used as a simple screening test by public health agencies may have caused an unfavorable reaction. Thus, while the pathologist was still biding his time, the clinician, particularly the gynecologist, took the initiative in the investigation and evaluation of the method (for the simple reason that he has a personal interest in his patients) and contributed largely in its development and popularization. The clinician, and not the pathologist, has furnished the leadership in the application of this method in practice, even though it is essentially a laboratory procedure, and the responsibility for the final diagnosis should rest with the pathologist.

The original Papanicolaou method is used to identify various type cells in the smears of the vaginal flora which may contain, in cancer of the uterus, malignant cells exfoliated from the surface layers of the actively proliferating tumor. Several minor modifications have been proposed for preparing and staining the smear, which, however, do not alter its essential features. The accuracy of the method, in experienced hands, has been reported to be in the neighborhood of from 80 to 100 per cent of proven positive cases in large

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series of cases; although a most recent report by a Philadelphia group of investigators gave a 30 per cent failure in sixty-three proven cases of cancer in 500 consecutive gynecologic patients, with 1.6 per cent false positives in the remaining 437 negative patients, a figure which probably more nearly approximates the experience of the average laboratory. More remarkable is the fact that a positive smear has been obtained in early cases of cervical cancer, in a number of instances, in the face of the negative clinical findings. Applied in diagnostic bronchoscopy, it has proven its distinctive value as an early available means of diagnosis, where a biopsy cannot be obtained. Cancer of the urinary tract has also been diagnosed frequently without cystoscopic instrumentation. These are the experiences which cannot be ignored in the final evaluation of the method.

The following illustrative cases are cited from our own experience.

Case 1.—Mrs. R. H., aged thirty-nine, consulted a physician, complaining of excessive and continuous vaginal bleeding for more than a month. Bimanual examination was essentially negative, and the cervix appeared smooth. A routine smear obtained directly from the cervix (a procedure which we prefer to the smear of the vaginal secretion) was positive for cancer cells. On the operating table, the cervix appeared so clean that it was difficult to select a site for biopsy. It was decided not to attempt a rapid diagnosis by frozen section, on a small piece of tissue biopsied, suspecting the presence of the so-called pre-invasive carcinoma ***in situ*** which could be more convincingly demonstrated by the paraffin section. A vaginal hysterectomy was done immediately thereafter, without waiting for the final confirmatory diagnosis. A histologic examination of the removed uterus revealed a small localized area of retained placenta, accounting for the bleeding; and early epidermoid carcinoma involving a large area of the posterior lip of the cervix in its pre-invasive stage. The biopsied piece from the cervix, however, failed to demonstrate the presence of carcinoma, thus convincingly pointing out the superiority at times of the smear method over the biopsy in this type of cases (carcinoma-in-situ).

Case 2.—Mrs. S. D., aged fifty-five, consulted a physician, complaining of a discharging nipple. On examination, a small amount of grayish-brown secretion could be expressed from the nipple which was smooth and soft. There was no palpable nodule or indurated area in the breast substance. The breasts were symmetrical and identical in appearance and consistency. A smear of the discharge from the nipple revealed many cancer cells which were presumably exfoliated from an intraductal papilloma, probably undergoing malignancy. A simple mastectomy was performed first. The nipple was soft; the main ducts were dilated and filled with a grayish-brown secretion. The breast proper was fatty. Deep within the fatty parenchyma were areas of streaky fibrous proliferation, from which several pinhead comedo specks were expressed, and one small irregular, hard, fleshy nodule about 5 mm. in diameter, which, on frozen section, showed an infiltrating comedo-adenocarcinoma. A radical mastectomy was done. One axillary lymph node showed a metastasis.

Identification of tumor cells in the body fluids, by using various routine staining techniques or their modifications, has long been in practice in the clinical laboratory without attracting any particular interest on the part of the clinician. Papanicolaou's singular contribution to medicine lies in his special staining technique and its application to the vaginal smear in the diagnosis of uterine cancer. It is not difficult to see that the application of the method to the cytological diagnosis of various other body secretions should follow. Thus, cancer cells have been sought and recognized with frequent success in the sputum, bronchial washing, gastric washing, urine, prostatic fluid, as well as the pleural, abdominal and other body fluids. There is, therefore, no longer any doubt that the Papanicolaou method is a valuable adjunct in the practice of cancer diagnosis, not only with reference to the female genital tract, but as applied to any exfoliated cells derived from any tumor in any organs of the body.

Because of the relative simplicity of obtaining the smear, and the low cost of the procedure, coupled with the many encouraging reports already published, the Papanicolaou method will undoubtedly become increasingly popular among clinicians, and might be too freely substituted for the usual biopsy. Therein lies the real danger, against which the medical profession and the public should be warned, for the limitations inherent in it, freely acknowledged by all investigators, are likely to be ignored by the enthusiasm of the less informed.

It should be emphasized also that the success of the method depends, in a large measure, upon the close co-operation between the clinician and the pathologist in every detail of the execution of its procedure and the final interpretation of the smear.

The method should not be used as a final and sole means of cancer diagnosis. On this point Papanicolaou himself states that "the smear technique should not be considered as a substitute for biopsy, curettage, or any other standard

method of diagnosis, but as an adjunct to them. Its greatest value is that it permits recognition of malignant neoplasms at a relatively early stage and in instances in which other diagnostic methods may fail. This point has been fairly conclusively proven by us and other investigators." Meigs, who pioneered in the investigation of this method, says, "Vaginal smear and biopsy are complimentary techniques which, used together, will enhance the effectiveness of the diagnostic clinic. The most important contribution of the vaginal smear technique may be in cancer control. A large number of women may be screened and those with positive smears studied further by biopsy. We do not regard a negative smear as excluding cancer; nor do we regard a positive smear without biopsy corroboration as an indication for surgery."

Briefly enumerated, the Papanicolaou method offers these advantages over biopsy: (1) the simplicity of obtaining the smear*; (2) the low cost of the procedure; (3) a better nuclear stain than that obtained by the conventional hemotoxylin and eosin method; (4) the adaptability to pre-clinical cases and cases beyond the reach of biopsy; (5) the routine use in the follow-up in cases of cancer of the uterus, under radiation therapy; (6) the adaptability to routine gynecological office practice and the use in the cancer control and similar clinics (with its limitations fully appreciated); (7) the smear may be repeated as often as necessary. Against these, the following disadvantages may be cited: (1) the staining technique is more time-consuming than the conventional frozen section procedure and cannot be adopted in the rapid operating room diagnosis; (2) the satisfactory examination of a smear may be too time consuming for the busy pathologist; (3) the histologic pattern of the tumor often essential in cancer diagnosis cannot be obtained; (4) the danger of depending on the cytology of single exfoliated cells cannot be altogether eliminated; (5) the cytologic appearance may be misleading and offer little help in distinguishing the type of a malignant tumor; (6) an element of chance and the personal equation may sometimes influence the interpretation and final diagnosis in the less experienced; (7) a sense of false security in a negative report, often in the presence of a lesion, cannot be entirely eliminated.

*Proper fixation of the smear, namely, to fix it in alcohol-ether, WHILE WET, is absolutely essential.

Thus, these two methods of cancer diagnosis, the cytological (the Papanicolaou technique) and the histological (the biopsy) may be regarded as two distinct and fundamentally different approaches to a common objective. Yet, they are not to be considered as two major rival procedures but only as complimentary techniques, each with its advantages and disadvantages, the former never to replace or substitute for the latter, which should maintain its preferred place in laboratory diagnosis of tumors.

Finally, it may be stated that Papanicolaou, himself, is extremely modest in his claim for the technique, and freely admits that some other staining method may prove to be superior in the experience of others. He confesses his own inability to identify questionable cells by his technique, and declares that ten false negatives are better than one wrong positive diagnosis. He emphasizes that his method should never replace or substitute for the biopsy. On the contrary, he insists on biopsy confirmation. He recognizes the cumbersomeness of his technique and hopes to simplify it. He does claim that his nuclear stain is clearer and sharper, and the cornifying cancer cells are more distinctly brought out on the smear (particularly in epidermoid cancer of the lung) by his technique than by any other method now in use. He believes that the Papanicolaou method of cyto-diagnosis of cancer has come to stay and will enjoy a peculiarly useful place in cancer diagnosis. He further believes that it will eventually be accepted as a laboratory procedure entrusted in the hands of the pathologist. Up to the present, however, he has given instruction in the cytologic diagnosis of cancer and his own staining technique to selected groups of clinicians and technicians, as well as pathologists, all of whom appear to have come away favorably impressed.

There may be an inherent danger of permitting the lay cytologists and technicians to wander too deep into the realm of cancer diagnosis. Just how to control this situation cannot be readily answered. It may be pointed out, however, that the recognition, if not the diagnosis, of a leukemic state through the blood smear by trained hematological technicians is being tolerated. Similarly, the identification of abnormal cells by this method by trained technicians under the supervision of a pathologist, who should make the final diagnosis, may be accepted. The grave danger of office diagnosis by clinicians without special training or by

(Continued on Page 64)

EXPERIENCE WITH SCREENING TESTS IN THE DETECTION OF CANCER

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CARDIOVASCULAR disease and cancer are the two greatest causes of death in this country. Of all malignancies, malignancies of the internal organs present the most acute problems, because they are silent for such a long period of time. Particularly is this true of cancer of the stomach and cancer of the large bowel, which together cause more deaths in both sexes than all other forms of cancer combined. Additionally, we are faced with the problem that the population of the United States is growing older so that by 1980, 40 per cent of the population will be over forty-five. The incidence of carcinoma will undoubtedly increase as the number of people in the older age groups is augmented.

The over-all picture for the results of surgery and treatment of malignancies is definitely influenced by the stage in which the disease is attacked. If the lesions are confined to the organ without the presence of metastases, the outlook is excellent. For example, in carcinoma of the stomach where the tumor is confined to the organ, a five-year cure reaches 60 per cent whereas the five-year survivals after metastases have occurred in about 6 per cent. There can be no question, then, that the ultimate hope for a better outlook in the problem of therapy in cancer rests with early diagnosis of the malignant lesion.

Unfortunately, cancer in its early stages is silent, and for that reason tests and examinations must be carried out upon individuals who seem to be apparently well. At the University of Minnesota two such studies have been undertaken within recent years. First, a study was started in the spring of 1945 in an effort to determine gastric cancer in individuals who had no symptoms. Since achlorhydria occurs in approximately 70 per cent of all patients with gastric carcinoma and an additional 15 or 20 per cent have hypochlorhydria, it was felt that examination of individuals who have achlorhydria and hypochlorhydria could possibly lead to the uncovering of silent gastric cancers. Histamine hydrochloride in triple doses of 0.5 mgm. each at half-hour intervals were given subcutaneously as a gastric acid stimulant. All individuals over the age of fifty who registered at the out-patient department at the University Hospital, were subjected to gastric expression following histamine stimulation. Free acid was tested for with Topfer's reagents, and quantitive estimations were made using 0.1 normal NaOH and Topfer's reagent and phenophthalein as indicators. Those individuals having achlorhydria and hypochlorhydria then had x-ray examinations of the stomach. The roentgenographic examination consisted of a fluoroscopic examination with an appropriate number of routine and spot films when indicated. In a number of instances, the patients for one reason or another were not given the three doses of histamine, and accordingly these patients have been dealt with as a separate group, the number of histamine injections given being indicated in those patients found to be achlorhydric. If no gastric lesion was found, each achlorhydric patient was given an appointment slip for re-examination in six months. In addition to achlorhydric and hypochloric groups, individuals with gastric polyps and pernicious anemia were also examined in a similar fashion. From a previous study by Dr. Wetherby of our institution, it was possible to obtain a series of patients who had been tested for histamine achlorhydria in 1940. These patients were recalled, and repeat examinations of the gastric juice and roentgenograms of their stomachs were done. In an effort to widen the scope of the project, so as to bring under observation more people who possibly could harbor the disease, individuals who had a family history of gastric carcinoma were included, and, in addition, people who had occult blood in the stool (Guaiac) and unexplained hemoglobin value of 11.0 grams or less (Sahli) were also examined.

Observations

From August 1, 1945, to May 1, 1948, inclusive (Table I), 2,977 patients who passed through the out-patient department at the University of Minnesota were eligible for this precursor gastric

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cancer study. Of this group, 2,890 had gastric expressions and 460 were found to be achlorhydric to triple histamine, 212 were achlorhydric to double histamine, 239 were achlorhydric to a single dose of histamine, and an additional ninety had hypochlorhydria, that is, less than 30 degrees of free acid. In these groups 719 gastrointestinal x-rays were taken in the individuals with achlorhydria to triple histamine, 254 in achlorhydria to double histamine, 195 in the individuals who were achlorhydric to a single dose of histamine, and finally, fifty-two were obtained in individuals who had hypochlorhydria. In all, then (Table II), 1,168 gastrointestinal x-rays were obtained in 911 patients with achlorhydria, and an additional fifty-two were obtained in the ninety individuals with hypochlorhydria. In these groups of patients, nineteen gastric polyps were found, with an additional thirteen questionably present, and seven silent gastric carcinomas were uncovered. Early in the study, two conditional cases were missed through errors in organization of the project and one additional case was missed by the x-ray examination; this was uncovered at a later date at operation for another unrelated condition. Thus, in all these patients with achlorhydria and hypochlorhydria, ten gastric carcinomas were present. In 110 patients of Dr. Wetherby's list, 113 gastrointestinal x-rays were obtained, and six polyps were found. Of seventy patients with pernicious anemia, twenty-six new and forty-four old, 136 gastrointestinal x-rays were taken. Four gastric polyps were found and two silent gastric carcinomas. Three polyps in the patients with pernicious anemia were found by gastroscopy. These were overlooked in the roentgenogram. One additional polyp was found at autopsy examination. In the sixty-seven patients who were relatives of individuals who had gastric carcinoma, sixty-seven x-rays were obtained, and no polyps or cancers were found. In patients with a hemoglobin of 11.0 grams or less, forty-five x-rays were obtained for forty-five individuals, and no polyps or gastric carcinomas were noted. Eighty-seven patients with occult blood in the stool had seventy-five x-rays, and no unusual findings were noted from the standpoint of the presence of gastric pathologic lesions. All in all, 1,380 patients had 1,656 gastrointestinal x-rays, and twenty-nine gastric polyps and nine gastric carcinomas were found.

The need for developing some workable plan

TABLE I. INCIDENCE OF ACHLORHYDRIA AND HYPOCHLORHYDRIA IN PATIENTS OF AGE GROUPS ELIGIBLE FOR PRECURSOR GASTRIC CANCER STUDY

Number Eligible	Gastric Expression	Achlorhydria (histamine)			Hypochlor.
		Triple GI	Double GI	Single GI	No. GI
2977	2890 (1747 m.) (1143 f.)	460 719 (297 m.) (163 f.)	212 254 (122 m.) (90 f.)	239 195 (131 m.) (108 f.)	90 52 (52 m.) (38 f.)

TABLE II
July 1, 1945 to May 1, 1948

	Number Individuals	GI Series	Findings Polyp	Findings Cancer
Achlorhydrics	911	1168	19 (plus 13 ques.)	7*
Hypochlorhydrics	90	52	—	—
Wetherby List	110	113	6 (plus 1 ques.)	—
P. A. List	70 (26 new) (44 old)	136	4**	2
Relatives of Patients with Gastric Cancer	67	67	—	—
Patients with Hemoglobin Level of 11 G. or Less	45	45	—	—
Patients with Occult Blood in Feces	87	75	—	—
	1380	1656	29	9

* Two additional cases missed through organizational errors, and one additional case missed by x-ray and uncovered at operation for unrelated condition.
** One polyp found at post-mortem, two additional polyps found at gastroscopy and missed by x-ray.

that will filter out those individuals most likely to harbor a gastric malignancy is substantiated by the studies of St. John, Swenson and Harvey in 1944 and of Daily and Miller in 1945. From Table III, it can be seen that the former group subjected 2,413 patients over the age of fifty without gastric complaints to a brief fluoroscopic examination after ingestion of barium and found two silent gastric carcinomas and one lymphosarcoma, an incidence of unsuspected gastric malignancy of 1.2 per thousand patients. No gastric polyps were uncovered in this group. Daily and Miller reported on a series of 500 patients subjected to barium examination of the stomach. These examinations were performed on presumably normal men over the age of forty-five free of digestive complaints. Three gastric lesions were found, a benign gastric ulcer, a polyp, and antral gastritis in a third patient. It can thus be seen that employing the above-described filters, particularly achlorhydria, hypochlorhydria and pernicious anemia, as precursor gastric carcinoma groups, has permitted the discovery of a greater number of gastric malignancies for a given number of x-ray examinations of the stomach than in the studies described above.

TABLE III. RESULTS OF PRECURSOR GASTRIC CANCER STUDIES

Investigators	Number Receiving GI Studies	Findings
St. John, Swenson and Harvey (1944)	2,413 over the age of 50 without gastric complaints	2 carcinomas 1 lymphosarcoma
Daily and Miller (1945)	500 males over 45 presumably free of digestive complaints	1 benign gastric ulcer 1 polyp 1 antral gastritis
Univ. of Minnesota (1945—1948)	Over the age of 50 1,111 free of digestive complaints with histamine achlorhydria and hypochlorhydria	7 gastric cancers 25 gastric polyps

Perhaps the most fruitful result of our investigation has been the uncovering of twenty-nine gastric polyps. Although many authors (Borrmann, Schindler, Rigler) have considered polyps of the stomach precancerous lesions, their actual status is difficult to evaluate in any given instance, as Spriggs and Marxer have indicated. It is one of the purposes of this study to attempt to secure a more satisfactory answer to the question of whether or not gastric polyps become malignant. This phase of the study has been carried out by Dr. L. Hay of our department, and we have noted in the gastric polyps under our observation that three have shown evidence of conversion of benignity to malignancy.

Cancer Detection Centers

As a result of the efforts employed in the precursor gastric cancer study as described above, it is felt that it would be more profitable to examine individuals as a whole rather than concentrating on any particular organ of the body. The thesis of the Cancer Detection Center has been the same as for the gastric precursor group namely, that cancer in its early stage is a silent disease, and to improve the end results of cancer therapy the lesions must be attacked in the early stages of development. With the approval of the Minnesota State Medical Association, the Cancer Detection Center has been set up as a clinical experimental project whose prime purpose is to examine apparently well individuals over the age of forty-five for the presence of symptomless malignancies. This clinical project will have a limitation of five years, after which the results will be carefully evaluated to determine its value. It is anticipated that only 1,000 patients will be examined each year, so that at the end of five years, 5,000 new patients will be examined. All patients will have re-examinations at six-month intervals. The emphasis in the Cancer Detection Center is on complete and thorough examination of a few, rather than relatively superficial examinations of large numbers of individuals. The examination, as carried out, takes one complete day, and the following parts of the examination are done in the morning:

(a) Complete blood count.
(b) Urinalysis.
(c) Blood Wassermann test.
(d) Occult blood in the stool (both by Guaiac and Benzidine tests).
(e) Gastric expression, using histamine as a gastric acid stimulant.
(f) A proctoscopic examination by a proctologist.

(g) Female patients have complete pelvic examination by a gynecologist.

As yet, the Papanicolaou technique is not being used routinely, but it is anticipated in the near future that this technique will also be added. Finally, before the morning examination is completed, the individual has an examination of the chest by means of the photofluorogram which is taken in both inspiration and expiration. The individual is then permitted to have lunch and returns in the afternoon for a complete physical examination by one of our doctors, using a routine examination form which has as its prime purpose the early detection of precancerous lesions as well as early carcinomas. We have recently added to our staff an otolaryngologist who examines the ear, nose and throat as well as the larynx of all patients, because it is our feeling that this is one area of the body which may harbor carcinoma without symptoms for a long period of time. You will note that routine examinations of the gastrointestinal tract and large bowel are not made because we are endeavoring to introduce workable filters here at the Cancer Detection Center, as well as in the gastric precursor study. To this end, then, the following individuals receive gastrointestinal x-ray series:

(a) Individuals with histamine achlorhydria and hypochlorhydria (less than 30 degrees freed acid).
(b) Patients with occult blood in the stool.
(c) Patients with a strong family history of gastric carcinoma.
(d) Patients with unexplained hemoglobin level below 11.0 grams.
(e) Patients with vague symptoms of gastric pathology which in any sense could be interpreted as being due to gastric carcinoma by the examining physician.

Similarly, the following individuals are given barium enemas:

(a) Patients with abnormal findings on proctoscopic examination.
(b) Patients with occult blood in the stool.
(c) Patients with unexplained hemoglobin level below 11.0 grams.
(d) Patients with a family history of large bowel malignancy.
(e) Patients who have vague symptoms that could possibly be conceived as being due to malignancy of the large bowel by the examining physician.

These examinations are not given on the day of the original visit to the Cancer Detection Center, but provisions are made for examinations by our x-ray department at a convenient later date.

At the completion of the examination the results of such examinations are discussed with the patient carefully and fully and in as nontechnical terms as is possible and then the individual is told to return to his family physician where he may obtain further information of a more detailed nature. Similarly, if any cancer or precancerous lesion is found, the patient is told to return to his personal physician so therapy may be instituted directly. A detailed analysis of our results, both positive and negative findings, is sent to the personal physician so that he may be fully aware of our findings. Individuals come to us, either by referral from their personal physician or of their own free will. If they come to us direct, they must give the name of some physician who is approved by the State Medical Association to whom we report our findings.

Examination being completed, the individual is then given a reappointment for a six-month checkup, at which time a complete examination, the nature of which has been described above, is performed.

Because of delay in obtaining even a temporary building, the Cancer Detection Center did not open its doors for examination of individuals until March 1, 1948. The response on the part of the public to this project has been almost overwhelming. To date approximately 8,000 individuals have applied for examination, but since our facilities are limited, we are at present not making appointment for examination more than six months in advance. In the meantime, we encourage all individuals to see their own personal physician so that a thorough examination can be carried out. From Table IV, it can be seen that 281 individuals have been examined at the Cancer Detection Center from March 1 to April 30, 1948, inclusive. In this group, five silent cancers have been found, three of these in the large bowel and two basal cell carcinomas of the skin of the face. In the first two weeks of the month of May,

TABLE IV. SUMMARY OF FINDINGS OF THE CANCER DETECTION CENTER, UNIVERSITY OF MINNESOTA

March 1, to April 30, 1948, Inclusive

I.	Total number of patients examined	281
II.	Carcinomas—total number	5
	Cancer of rectum	2
	Cancer of the cecum	1
	Basal cell carcinomas of face	2
III.	Precancerous lesions—total number	70
	Rectal polyps (including adenoma)	38
	Keratosis of skin	10
	Pigmented neavi in areas of irritation	11
	Kraurosis vulvae	2
	Oral leukoplakia	4
	Solitary thyroid adenoma	4
	Gastric polyposis	1
IV.	Benign Tumors—total number	40
	Adenocyatic disease of breast	1
	Hemangioma	2
	Fibroma	1
	Lipoma	2
	Sebaceous cyst	6
	Polyps of cervix uteri	11
	Pyogenic granuloma	1
	Cysts of cervix uteri	3
	Myomata of uterus	4
	Thyroglossal duct cyst	1
	Papilloma of skin	2
	Adenoma of prostate	3
	Urethral caruncle	3
V.	Suspicious tumors requiring further diagnostic procedures—total	16
	Tumors of lip	4
	Tumor of tonsillar pillar	2
	Tumor of tongue	1
	Adenal masses	6
	Uterine masses	1
	Ulcer of cervix	1
	Cervical erosion	1
VI.	Non-cancerous conditions requiring medical attention—total number	61
	Duodenal ulcer	4
	Cholelithiasis	1
	Arteriosclerotic heart disease	17
	Hemorrhoids	20
	Varicose veins of lower extremities	5
	Perforated ear drum	3
	Hepatomegaly	2
	Anal fissure	1
	Cataracts	2
	Chronic cervicitis	1
	Hydrocele	2
	Arthritis	1
	Calcifying myositis	1
	Hernia (inguinal)	1

The above findings noted in 134 of the 281 patients examined.

TABLE V. SUMMARY OF LABORATORY FINDINGS OF THE CANCER DETECTION CENTER, UNIVERSITY OF MINNESOTA

March 1, to April 30, 1948, Inclusive

I.	Stools for Occult Blood—total number	281
	Benzidine positive	26
	Guaiac trace	9
	Guaiac positive	7
	Total	42
II.	Urinalysis—total number	281
	Positive for sugar	10
	Positive for albumin	5
	Total	15
III.	Blood counts—total number	281
	Hemoglobin level below 11.0 grams	5
IV.	Gastric expression—total number	276
	Achlorhydria (after histamine)	45
	Achlorhydria (no histamine)	5
	Hypochlorhydria (after histamine)	39
	Hypochlorhydria (no histamine)	4
	Hyperchlorhydria	1
	Total	94

three additional carcinomas were found, all in the large bowel. To May 15, for the first two and a half months for which figures are available, eight carcinomas have been uncovered, and seventy precancerous lesions have been detected. Chief amongst these have been rectal polyps including adenomas, of which there have been thirty-eight. Ten individuals had keratosis of the skin, eleven had pigmented naevi in areas of irritation, in two there was kraurosis vulvae, in four leukoplakia (oral), in four solitary thyroid adenomas, and in one gastric polyposis. There were forty instances of benign tumors, and sixty-one instances in which noncancerous conditions requiring medical attention were uncovered, chief among which were arteriosclerotic heart disease and hemorrhoids.

The above findings were noted in 134 of the 281 patients examined. It can thus be seen that the early results of our studies at the Cancer Detection Center have been most encouraging. Although the effort is great, and the time spent considerable, still if the results continue to be as fruitful as they have in the first two and a half months, there can be no question that this project is a worth-while one.

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CANCER IN MINNESOTA CHILDREN

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IT HAS long been recognized that many children die of cancer. It is doubtful, however, whether physicians in general are aware of the fact that cancer is now among the leading causes of death in Minnesota children under fifteen years of age. If we exclude congenital malformations, diseases peculiar to the first year of life, and accidents, cancer (or leukemia) has ranked among the first five causes of death in children from birth through age fourteen in Minnesota during the years 1944 to 1947.*

The five leading causes of death for Minnesota children for the years indicated, with the exceptions noted, were as follows:

1944	1945
1....Pneumonia	1....Pneumonia
2....Diarrhea and enteritis	2....Diarrhea and enteritis
3....Measles	3....Influenza
4....Influenza	4....CANCER (32 deaths)
5....CANCER	5....Heart disease (32 deaths)
1946	**1947**
1....Pneumonia	1....Pneumonia
2....Poliomyelitis	2....Diarrhea and enteritis
3....Diarrhea and enteritis	3....LEUKEMIA
4....CANCER	4....Diseases of the nervous system
5....Influenza	5....Whooping cough

As Dr. Harold W. Dargeon recently pointed out, the high rate of mortality from cancer among children "is probably mainly due to the decline in deaths from other diseases. Increasing recognition and more accurate diagnosis have likewise raised the statistical incidence."[1] Since cancer does rank so high as a cause of death in children today, the subject calls for much more thorough study than it has hitherto received.

Considerable data on cancer among children have been gathered in a survey of all cancer deaths reported by Minnesota hospitals since 1940. This survey has been carried on by the Division of Cancer Control of the Minnesota Department of Health. Table I shows the number of deaths from cancer among Minnesota children under fifteen years of age for the years 1940-1947 inclusive. Table II shows the deaths among children of similar age from lymphatic leukemia, myelogenous leukemia, and Hodgkin's disease.

It will be seen from these tables and the accompanying graph that both cancer and leukemia may attack children at a very early age. Indeed, it is during the first five years that the largest number of deaths occur from both cancer and leukemia. The age curves for both types of disease show a tendency to dip during the age period five to eleven years, with a slight rising tendency in the early teen ages. In the children included in this study, the sharp rise in leukemia deaths at age two is particularly striking. It seems probable that many cases of leukemia that caused death at two years of age were present at birth and reached the fatal stage some time during the second year of life.

There is a notable sex difference in the cancers occuring in this group of children. As Table I shows, four cancers were found in boys to every three in girls. The leukemias do not show so marked a sex difference, although there are more cases of both types of leukemia in boys than in girls. The total number of cases of Hodgkin's disease is so small that the sex difference may be insignificant.

Table I also indicates the great variety of primary sites at which cancer has occurred in Minnesota children in recent years. The largest number have been found in the brain and nervous system. The kidneys, bones, and abdomen also rank high as primary sites.

It is of interest to note that in the larger series reported by Dr. Dargeon and his associates from the Children's Tumor Registry and Pediatric Service, Memorial Hospital, New York, the six main body areas in which cancer was reported were the central nervous system, bones, eye, kidney, blood and lymphoid system, and skin and supporting tissues. Also in that series of cases, the mortality incidence from both cancer and

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*For the period 1944-47 inclusive, exact figures are not available on the total population for the age groups considered. Census figures for 1940 give the following data for Minnesota children:
0-15 years: males, 140,327; females, 133,638
6-14 years: males: 211,622; females, 203,444
Estimates for 1946 indicate a decrease of 3.5 per cent for the entire population under 21 years of age. Therefore the estimated total population for these age groups, averaged for 1944-47, would be as follows:
0-5 years: males, 135,415; females, 128,960
6-14 years: males, 204,214; females, 196,323
These figures indicate that there are considerably more children in the 6-14 year age group than in the 0-5 year age group. The figures indicate no significant sex distribution.

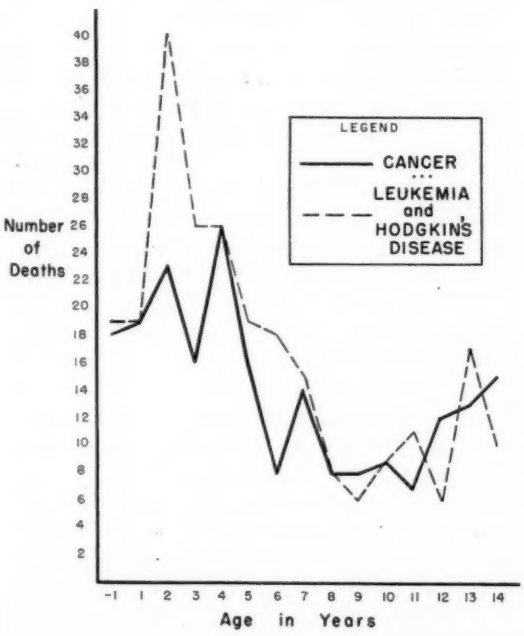
TABLE I. NUMBER OF DEATHS FROM CANCER AMONG CHILDREN RESIDING IN MINNESOTA
1940-1947 Inclusive

Primary Site of Cancer	Age of Children in Years															Total Deaths, Birth to Age 14	Sex of Child	
	—1	1	2	3	4	5	6	7	8	9	10	11	12	13	14		M	F
Brain and Nervous System	4	6	8	7	8	6	3	7	6	1	3	3	8	3	3	76	46	30
Kidney	4	4	4	2	8	4	1	0	0	0	1	2	1	0	0	31	15	16
Bone	0	3	0	0	0	1	0	3	0	2	3	0	1	6	9	28	14	14
Abdomen	3	1	2	2	0	1	0	2	1	2	0	1	1	2	1	19	15	4
Mediastinum and Lungs	1	1	1	0	3	1	1	2	0	2	0	0	0	1	1	14	11	3
Lymph Glands	0	0	1	1	3	0	1	0	1	1	1	0	0	1	1	11	7	4
Liver	2	2	2	0	2	0	0	0	0	0	0	0	1	0	0	9	6	3
Adrenals	1	1	1	3	0	1	0	0	0	0	0	0	0	0	0	7	4	3
Eye	0	0	3	0	1	1	0	0	0	0	0	1	0	0	0	6	2	4
Ovaries	0	0	0	0	0	1	0	0	0	0	0	0	1	0	1	3	0	3
Bladder, Prostate and Scrotum	1	0	0	0	0	0	1	0	0	0	0	0	0	1	0	3	2	1
Face and Neck	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	2	1	1
Miscellaneous	2	1	1	0	0	0	1	0	0	0	1	0	1	1	1	9	5	4
All Sites	18	19	23	16	26	16	8	14	8	8	9	7	14	15	17	218	128	90

TABLE II. NUMBER OF DEATHS FROM LEUKEMIAS AND HODGKIN'S DISEASE AMONG CHILDREN RESIDING IN MINNESOTA
1940-1947 Inclusive

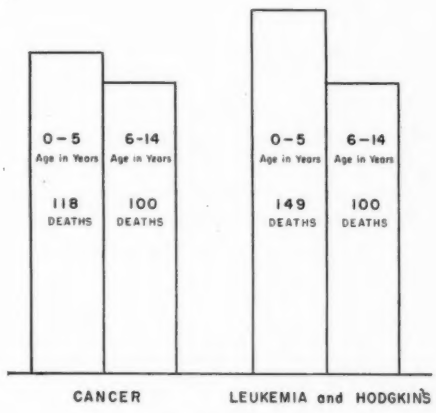
Disease	Age of Children in Years															Total Deaths, Birth to Age 14	Sex of Child	
	—1	1	2	3	4	5	6	7	8	9	10	11	12	13	14		M	F
Lymphatic Leukemia	16	14	37	23	24	17	13	11	5	4	5	8	4	12	7	200	110	90
Myelogenous Leukemia	3	4	3	1	2	2	3	3	3	1	4	3	2	3	1	38	28	10
Hodgkin's Disease	0	1	0	2	0	0	2	1	0	1	0	0	0	2	2	11	8	3
Totals	19	19	40	26	26	19	18	15	8	6	9	11	6	17	10	249	146	103

DEATHS FROM CANCER, LEUKEMIA, AND HODGKIN'S DISEASE AMONG MINNESOTA CHILDREN, FROM BIRTH TO FOURTEEN YEARS OF AGE.
1940-47 Inclusive



Graph 1

COMPARATIVE NUMBER OF DEATHS FROM CANCER AND FROM LEUKEMIA AND HODGKIN'S DISEASE IN MINNESOTA CHILDREN IN TWO AGE GROUPS.



Graph 2

leukemia was highest in children from birth to four years of age. Deaths from leukemia for that early period totalled more than those for the succeeding ten years, and deaths from cancers and other tumors during the first four years of life numbered 3,095, as compared with a total of 3,958 for the succeeding ten years.[2]

Cancers of the brain and nervous system appear to be fairly well distributed through the entire age range in the Minnesota children with a possible, though by no means certain, decrease after age eight. Cancers of the kidney and liver are fairly well concentrated in the lower age ranges. Bone cancers show rather more of a tendency to prove fatal during the later ages of childhood. A few abdominal cancers were found in this group of Minnesota children at nearly every age.

Lymphatic leukemia dropped fairly consistently from age four to age thirteen, but myelogenous leukemia showed only very slight variations with age. In Hodgkin's disease, as stated above, the cases are too few to indicate any sort of trend.

Because cancer and leukemia are so prevalent in children, it is obvious that physicians examining children should be constantly on the alert for symptoms that may be indications of these diseases, particularly since they are known to progress rapidly during childhood. A number of the cancers in this series were discovered only on autopsy. Special diligence is required in looking for signs of cancer in infants and preschool children. This group of Minnesota children, from birth to five years of age, contributed more deaths, 118, than did all the children in the much larger age group, six to fourteen years, in which 100 cancer deaths occurred. The same relationship holds for the leukemias and Hodgkin's disease. Among children five years of age or younger, deaths from these causes totalled 149; in children six to fourteen years of age, deaths totalled only 100.

As Dr. Dargeon reminds us, "A disorder that appears to satisfy all but a few of the criteria of a common disease may be cancer. . . . Repeated investigation, therefore, should be routine in the presence of (a) an atypical symptom complex or (b) an unusual child patient. . . . The child who is a behavior problem may likewise have a neoplasm."[1]

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THE PAPANICOLAOU METHOD OF CANCER DIAGNOSIS

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technicians, and this should be repeatedly pointed out, lies in the fact that the method, in some respect, is found to be more involved than the biopsy, and the incidence of error in such hands would necessarily be far too great. Yet, this seems to be the trend. Since the pathologist, in a sense, is regarded as the final word in cancer diagnosis, it is reasonable to expect that he should take cognizance of the involved situation and offer his assistance in the solution of the problems arising from the universal practice of this useful, yet dangerous method. To that end, he should take advantage of every opportunity to be enlightened on the subject and urge the future pathologists to include in their training a course in cyto-diagnosis. Fellowships in cyto-diagnosis of cancer, such as those sponsored by the American Cancer Society, should be regarded as an answer to the present need.

Conclusions

The Papanicolaou cytologic method should be recognized as a laboratory procedure in cancer diagnosis. It must be considered as an adjunct to, and not a substitute for, the biopsy. When frankly positive (Papanicolaou's Class V), it is as conclusive as a histologic section. The rule should be, however, that a positive smear should be corroborated by the biopsy or the clinical evidence. A negative result should never be accepted as final. The fact that it depends solely upon the cytology of the exfoliated cells, and a personal factor may sometimes play a part in the interpretation and diagnosis, makes the method dangerous, unless employed with the full appreciation of its limitations. On the other hand, the fact that it has been proven to give a positive diagnosis in preclinical lesions and in lesions beyond the reach of the biopsy makes it a doubly welcome addition to the available methods of cancer diagnosis; yet this should not alter its fundamental shortcomings and evoke undue enthusiasm for, or reliance upon, it. The vaginal smear method may be employed as a routine measure in gynecological office practice or in a mass survey of women in a clinic or a cancer detection center as a preliminary screening process, only where proper and

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THE CANCER PROBLEM FROM THE STANDPOINT OF THE PRACTICING PHYSICIAN IN THE SMALL COMMUNITY

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THE INCREASING pressure of public opinion makes it mandatory that the practicing physician, particularly the physician in a smaller community, evaluate his own abilities and shortcomings in the diagnosis and treatment of cancer. The larger medical centers are able to point with justifiable pride to statistical improvement in the treatment of various types of cancer; lay groups are waging enthusiastic educational campaigns designed to bring the patient to the physician in the early stages of the disease; cancer detection centers are being established in many localities; and cancer research is receiving better support. Thus far, however, too little attention has been directed toward the position of the independent practicing physician in relation to the cancer problem. Yet he is the key to the reduction of cancer mortality, at least until some universal diagnostic test or cure for cancer is determined, for he is the one who has the best opportunity to discover cancer in its early stages.

Is the practicing physician at fault in the delay in the diagnosis of cancer? Apparently the answer is "Yes." Leach and Robbins,[1] in a very revealing recent survey, determined that the physician alone is responsible for the delay in the diagnosis of cancer (all types) in 27.8 per cent of the cases studied. The physician's culpability rises to almost 50 per cent in internally located cancer. A survey of seventy-two new cases of cancer in sixty-eight patients, seen by the author in his practice over a period of slightly more than two years, is shown in Table I and compared with the report of Leach and Robbins. The criteria established by Leach and Robbins were used in the analysis of these cases.

These seventy-two cases were either seen directly by the author or referred to him by some fourteen different physicians in the community. Cases in which the primary diagnosis was made elsewhere are not included. This series, though small and perhaps not statistically significant, does indicate that there is still a tremendous chance for improvement in the early diagnosis of cancer even in a comparatively small community where the physician-patient relationship is more intimate than in larger centers.

TABLE I. DELAY AND CULPABILITY IN CANCER DIAGNOSIS

	Leach& Robbins	Present Study
Patient alone	32.0%	37.5%
Patient and Physician	10.8%	2.8%
Physician alone	27.8%	16.7%
No delay	29.4%	43.0%

Why does the average practicing physician, who is almost always the first physician to see the patient, too often fail to fulfill his obligations to detect cancer in its early stages? There are many intangible aspects to the answer to this question, but some rather obvious reasons for delay in the diagnosis of cancer are apparent to those of us who form a part of that large group of average practicing physicians. In the first place, the "average" must always be considered, and in so doing, the sins of a few are laid at the feet of many. Lack of education, in a specific sense, is not the major fault that many believe it to be. However, the mental stimulation and constant re-education that is more or less forced upon a man associated with a teaching institution is either not available to, or not forced upon, the large group of independent practicing physicians, particularly those in smaller communities. Education or re-education of the practicing physicians therefore becomes a major weapon for the profession in combating delay in the diagnosis of cancer. Postgraduate refresher courses and clinics, such as are easily available in Minnesota, are of unquestioned value in this re-education process. Unfortunately, however, it is usually the better-than-average practicing physician who avails himself of such benefits. An intensive educational program, enticing enough to attract all physicians and conducted through the component county medical societies, might better serve to reach a larger group of physicians. In sharp contradistinction to the usual course of events, the smaller and more isolated the society, the better should be the program. (The Cancer Education Service of the Cancer Committee of the Minnesota State Medical Association, operated in co-operation with the Cancer Control Division of the Minne-

sota Department of Health, is designed to answer this problem in Minnesota).

The extreme pressure and the very nature of his everyday practice is another major factor in causing the average practicing physician to delay too long in the diagnosis of cancer. Certainly he knows, for example, that cancer of the stomach must be diagnosed early if there is to be any hope at all of cure; and he is equally cognizant of the fact that an x-ray examination is his best aid in establishing such a diagnosis. However, the busy physician sees hundreds of patients with vague, ill-defined and usually minor gastric complaints before he encounters one cancer of the stomach. He cannot x-ray all of these people, although it might be the ideal procedure, nor can he refer even a major portion of them to a specialist, or else he would not long remain in practice. What is the answer then to his dilemma? How can he sort out the early malignant disease, which when early is protean and mild in its manifestations, from the multitude of lesser ills? The better-than-average busy physician has usually solved this problem satisfactorily in a manner which we will stress later.

A third factor which tends to lessen the sensitivity of the average physician in the matter of cancer diagnosis is a general lack of enthusiasm, often more real than apparent on the surface. This is occasioned by a number of factors. Cases which he does diagnose early are referred to a surgeon or radiologist or a group of specialists who are accordingly given credit for the cure. The late incurable cases are quickly referred back to the general practitioner after a palliative procedure has been performed. He spends many days and nights with these patients answering the questions that have been left unanswered, dressing the wound that is still draining, controlling pain, and, finally, signing the death certificate. When such cases constitute the bulk of his experience with cancer treatment, it is no wonder that his enthusiasm is dulled! Perhaps a local cancer clinic at regular intervals, based on a survey of cancer cases diagnosed or treated at the local community hospital, would serve as a stimulus for practicing physicians in small communities. A surprisingly large volume of clinical material, which would be of personal interest to the local physicians, would thereby become available for a physicians' educational program.

There are many practical methods to aid in the shortening of the lag period in the diagnosis of cancer that are discussed today, aside from the hope that intensive cancer research may sooner or later offer a universal diagnostic procedure for the detection of cancer. Education of the public, cancer detection clinics, and education of practicing physicians have all been stressed as means of reducing the lag period in the diagnosis of cancer, and thereby reducing the mortality of this disease. The value of cancer detection clinics and public education is unquestioned, but in our opinion the final responsibility for the early detection of cancer falls directly upon the shoulders of the practicing physician. It is our belief that the major effort to shorten the lag period in the diagnosis of cancer must be directed towards the well-established personal physician-patient relationship.

Leach and Robbins have forcefully stressed the role of the practicing physician in cancer mortality reduction as follows: "The hope of making appreciable immediate reduction in cancer mortality lies with the individual physicians. The cancer clinic can reach but relatively few persons. The physician, whether he be general practitioner or specialist, internist or surgeon, must operate his own cancer detection clinic in his office and in his hospital service, before any reduction in cancer mortality is made. The means for reducing morbidity and mortality due to cancer are at hand. They remain to be used."

We would add to the need for education of the individual physician a plea for better organization among practicing physicians, particularly those in smaller communities. In larger cities and medical centers, the ready availability of various specialists and of tumor clinics should preclude the need for pooling of equipment and abilities. However, in smaller communities and rural districts where the majority, if not all, of the practicing physicians are general practitioners, we believe that there is a definite need for an informal organization of the practicing physicians in order to improve cancer morbidity and mortality. Such organization simply implies a more general use of existing facilities and individual abilities, and a cohesive effort on the part of the group to improve diagnostic facilities, preferably through a common medium such as the community hospital. No formal organization is necessary except the existing local medical societies, but the group effort must be strong

enough to transcend individual petty jealousies. It need not interfere with the individual practice of medicine, but should, in fact, strengthen the position of the private practitioner by improving his cancer morbidity and mortality rate and generally raising the standards of medical practice in the community. We are firmly convinced that the public now expects the individual physician to produce results commensurate with the generally improved results of cancer diagnosis and treatment in specialized centers. The pressure of public opinion is a powerful force that cannot long be ignored even by such individualists as physicians in our smaller communities.

The individual physician's evaluation of the facilities available to him in the diagnosis and treatment of cancer will logically proceed under the following general headings:

1. *Physical Examination.*—It may seem trite to review the individual physician's ability to perform a proper examination, but continued reiteration of the necessity for a careful physical examination in the detection of cancer cannot be overemphasized. "More is missed in medicine by not looking than by not knowing." It is significant that Leach and Robbins, in discussing the survey previously quoted, said, "In over 80 per cent of the patients in this study, the diagnosis of cancer could have been suspected or made by the initial physician if only a careful history and physical examination had been made."

We believe that the better-than-average practicing physician is seldom guilty of overlooking or not suspecting the presence of cancer chiefly because he will not allow himself to perform a poor examination. If, in spite of a busy practice, the physician takes a careful history of the case he will usually be able to segregate the more serious ailment from the multitude of lesser ills. It has been said, "If you listen to the patient long enough, he will tell you the diagnosis." However, if the diagnosis is not clear after a careful history and physical examination, the physician must insist on a more careful study of the case and make it clear to the patient that he must return for re-evaluation at regular intervals, particularly if his complaints are not promptly and completely relieved by symptomatic treatment. It is in this way only that the frequently insidious onset of cancer can be detected without undue delay.

2. *Endoscopic Examination.*—Next in importance to the information obtained from the history and physical examination is the ability to directly visualize an internally located lesion. A simple speculum examination of the cervix uteri or indirect laryngoscopic visualization of the larynx are such useful and common procedures that they should form part of every general physical examination. Sigmoidoscopic examination of the lower ten inches of the large bowel can be performed with relative ease and should be performed much more frequently. Such an examination, if done routinely, will reveal an astoundingly large number of cancerous and precancerous lesions of the rectum and rectosigmoid even in cases with no local symptoms referable to the lower bowel. A specialist in proctology will seldom be easily available in small communities, and for this reason every general practitioner with reasonable dexterity should learn to perform sigmoidoscopic examinations or he should have available and utilize the skill of some other physician in his community. Cystoscopy requires even more skill, but it is not beyond the scope of general surgeons in small communities. If he is wise, the average general surgeon will limit himself to cystoscopic diagnosis, leaving the more difficult problems of treatment entirely to a skilled urologist. However, since urologists are not universally available, each community should have and should utilize the skill of at least one physician for cystoscopic diagnosis. Bronchoscopy, gastroscopy, thoracoscopy and other endoscopic procedures are more highly specialized examinations which may be beyond the scope of physicians in smaller communities. The need for such procedures is less frequent than for the more commonly used endoscopic examinations, but each physician should recognize the occasions when such specialized examinations are required and should promptly refer the patient to a competent specialist.

3. *X-ray Examination.*—Adequate roentgenological facilities are a sine qua non in the diagnosis of cancer. Adequate facilities include not only suitable x-ray and fluoroscopic equipment but the services of an experienced roentgenologist as well. The physicians of Austin and other communities throughout Minnesota have for several years employed the part-time services of expert roentgenologists from nearby urban cen-

ters. Such an arrangement cannot fail to improve the general standards of medical practice in a community and aid immeasurably in the early detection of cancer. The position of the general practitioner in the community is greatly strengthened thereby, and the improved quality and increased quantity of his practice more than compensate him for the work referred to the roentgenologist.

4. *Pathological Examination.*—The saying "Every tissue worth removing from the human body is worth examining microscopically," is not without merit. Not infrequently the pathologist discovers early cancer in the routine examination of tissue removed surgically in cases where the presence of cancer was not suspected clinically. Certainly most small hospitals cannot support a pathologist, but arrangements should be made with a competent nearby pathologist for the routine examination of all surgical and biopsy specimens. It is only logical that a higher percentage of practicing physicians will utilize the advantages of a biopsy in borderline cases when the arrangements have been made for the routine examination of tissue.

The nonavailability of a pathologist for frozen sections and the necessary delay when one must wait a few days for a pathological report are inconveniences that one must tolerate in smaller hospitals. However, in spite of the increased burden for the surgeon who does not have a pathologist on hand to share his responsibilities, the lack of immediately available pathological reports is not a very serious problem and need not jeopardize the patient. We would personally prefer the slightly delayed but reliable reports of a competent pathologist to immediate reports from a poorly trained resident pathologist. However, we must add that we do miss the personal presence of a pathologist, particularly the stimulus that the usually inquisitive and critical mind of one of that specialty adds to the practice of medicine. The status of the pathologist as a consulting specialized clinician must be maintained; and when more well-trained pathologists become available, every sizable community should seek to obtain a full-time pathologist.

5. *Surgery.*—The physician must be extremely critical in his evaluation of his own ability or the ability of others in his local community to handle the surgical treatment of cancer. Certainly minor cancers, such as many of the cutaneous cancers, can be treated by anyone reasonably skilled. However, cancers of the breast, gastrointestinal tract, and other organs require a maximum of surgical skill, as any operative procedure for such cancers must of necessity be of a radical nature if good results are to be expected.

The improved quality and quantity of surgical training in the past decade has gradually improved the standards of surgery in small hospitals, so that skilled surgical treatment of the more common types of cancer amenable to surgery is now available in many of our smaller communities. It is the author's opinion that this is a healthy trend, for regardless of the efficiency and impeccable reputation of our larger medical centers, many patients will inevitably remain at home for treatment unless the very nature of the disease absolutely demands highly specialized treatment, such as neurosurgery, which is available only in the larger medical centers.

6. *Irradiation Therapy.*—The ability to properly administer irradiation therapy in the treatment of cancer, like the surgical treatment of cancer is a specialized field and, here, too, no compromise should be made. Roentgen and radium therapy should be directed by a qualified radiologist at all times. It is our opinion that in certain fields, particularly the field of gynecologic malignancy, the treatment should be through the combined efforts of an experienced radiologist and a man experienced in the field of gynecologic malignancy. If such facilities are not available in a community, patients requiring this highly specialized type of treatment should be referred elsewhere. Here again, commensurate with increasing demands and with the increasing availability of well trained men, many of our smaller cities, such as Austin, soon will have available adequately trained men and adequate equipment for the treatment of these specialized cases of cancer.

In order to obtain an approximate idea of the volume and type of cancer work that a general surgeon in a small community encounters, we have analyzed the seventy-two new cases of cancer, referred to in Table I, that we have seen during a period of slightly over two years since returning to Austin after military service. It

TABLE II. ANALYSIS OF CAUSE FOR DELAY IN DIAGNOSIS OF CANCER BY PHYSICIANS

Failure to perform proctosigmoidoscopic examination	4
Relying upon negative x-ray report	3
Failure to advise biopsy of palpable mass	2
Failure to advise uterine curettement	1
Failure to advise colon x-ray	1
Error in biopsy interpretation	1
Insidious nature of the disease *per se*	2
Total	14

should be emphasized that these cases do not, of course, represent an attempt to survey all of the new cases of cancer developing in this community nor do they represent all of the new cases of cancer seen by members of the Austin Clinic, of which the author is a partner. However, since a great majority of these patients were referred by fourteen general practitioners in Austin or nearby communities, the group is a fairly representative group of cases. In Table II, we have attempted to classify the reasons for delay in the diagnosis of the fourteen of the seventy-two cases in which the physician was held responsible for delay in diagnosis, according to the standards set by Leach and Robbins.[1] In all fairness to physicians of the Austin community, it should be noted that in seven of the fourteen cases where the physician was held liable for the delay in diagnosis, the error was attributable to physicians outside of Austin and the surrounding communities, often to physicians in larger medical centers, and in no case was improper treatment advised. In the majority of cases where delay in diagnosis occurred, the delay resulted in spite of apparent conscientious efforts on the part of the responsible physician; and in many instances, the very insidious nature of the disease itself was a sizable factor in the delay. However, it is obvious from Table II that the omission of such simple examination procedures as sigmoidoscopic examination, uterine curettement, biopsy and x-ray examination constitutes a major and inexcusable source of delay in the diagnosis of cancer. It is also apparent from Table II that physicians are too prone to rely on a negative x-ray report as infallible, often in the face of strongly suggestive symptoms. Under such circumstances, the author is reminded of an aphorism which Dr. E. L. Eliason of Philadelphia has often repeated for his students: "When the clinical and laboratory findings do not agree, repeat them both."

The various types of cancer encountered in this series are shown in Table III. It should be noted

TABLE III. LOCATION OF CANCER IN SEVENTY-TWO CONSECUTIVE CASES IN A GENERAL SURGICAL PRACTICE

Anus, rectum and colon	18
Breast	14
Stomach	11
Lip	4
Ovary	4
Fibrosarcoma (soft tissues)	3
Fundus uteri	2
Cervix uteri	2
Kidney	2
Bladder	2
Esophagus	2
Skin	2
Alveolar process	1
Pancreas	1
Hodgkin's Disease	1
Penis	1
Urethra	1
Vulva	1
Total	72

that of the seventy-two primary cancers, there were five instances of multiple cancer. Three patients had new primary breast cancers at intervals of seven months, two years, and seven years after the first breast cancer. One patient had two separate carcinomas of the large bowel occurring almost simultaneously, and another patient had a resectable carcinoma of the transverse colon two years after the successful resection of a carcinoma of the cecum.

TABLE IV. TYPES OF TREATMENT

	Treated Locally	Treated Elsewhere
Major radical surgery	35	8
Major palliative surgery	4	1
Minor surgery, other than diagnostic procedures	10	3
Irradiation	0	4
Palliative non-surgical treatment	5	0
No treatment (refused)	2	0

A brief analysis of the type of treatment rendered the cases in this series is shown in Table IV. There were three operative deaths in our thirty-five cases where major surgery was performed in the hope of ultimate cure. These three cases were all gastric resections in poor risk patients, two of whom had acute, frank perforations of carcinomatous ulcers. Death was due to auricular fibrillation and cardiac failure in one case, surgical shock and aspiration atelectasis in another, and pulmonary embolism on the 14th postoperative day in the third case. There were two known deaths in the major cases treated elsewhere, one following a combined abdominoperineal resection, the other following a gastric resection. The immediate cause of death in these two cases is unknown. One hospital death followed major palliative surgery (cecostomy for the relief of acute obstruction), but the death was

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AMNIOTIC FLUID AND MECONIUM EMBOLISM

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IT IS the purpose of this paper to present two cases of maternal death from pulmonary embolism by amniotic fluid and meconium, together with autopsy findings, a brief review of the literature, and a discussion of the significant features of this rare condition.

It was first described in 1941 by Steiner and Lushbaugh, and in two papers they reported a total of ten cases. Since then Hemmings has reported one case and Gross and Benz have published a report of three cases. Steiner and Lushbaugh, in their original paper in 1941, thoroughly reviewed the literature to that date, and stated that they found no evidence of this condition having been diagnosed previously as a disease entity. However, they did find many reports of sudden, unexplained death occurring during or after labor with features similar to those they assign to this condition. In these instances, the older writers had ascribed various causes for death. These, to name a few, included hypersensitive vagus, obstetrical shock, idiopathic postpartum uterine atony with hemorrhage, acute pulmonary edema of pregnancy, "facultative invalidism" of the heart, eclampsia without convulsions, internal or external uterine hemorrhage, et cetera. De Lee (quoted by Steiner and Lushbaugh) had shown the symptoms to be similiar to those of anaphylactic shock. It is noteworthy that none of these cases reported previous to 1941 included a careful examination of the lungs.

Steiner and Lushbaugh discuss extensively the clinical and experimental studies they have made of this condition. Hence, we will not recapitulate all these details, but instead, we propose to present briefly only the most pertinent data. They offer the theory that during a strong or tetanic uterine contraction, amniotic fluid rich in either vernix caseosa or meconium or both is trapped in the uterus and is forced into the venous sinusoids, becomes embolic and lodges in the lungs. This would be favored if egress of amniotic fluid is blocked or if the fetal membranes are not ruptured at the cervix. Such an explanation would not be applicable to our first case, in which a cesarean section was performed before labor had begun. However, they also postulate the role of a possible tear in the fetal membranes or placenta as suggested in some cases with bloody fluid. After these emboli lodge in the smaller pulmonary arteries, a picture of anaphylactoid shock ensues. This probably is associated with reflex vascular spasm in the lungs and cardiac depression as in the case of pulmonary embolism of other types. As predisposing factors, they include uterine tetany or very strong contractions, meconium in the amniotic fluid, intra-uterine death of the fetus, oversized baby, multiparity and older mothers.

Clinically, the picture of shock is described as occurring during or soon after labor, often associated with hard and violent pains of uterine tetany. Listlessness, dyspnea, cyanosis and coldness accompany the drop in blood pressure to shock levels with a rapid, weak pulse that may become unobtainable. Occasionally there is vomiting and delirium. The duration of labor is not abnormal. Death occurred during delivery in two of their cases, up to eight and one-half hours postpartum in seven cases, and on the seventh day in another.

The pathological examination reveals the cause of death in all of these instances to be widespread embolism of the small pulmonary arteries (less than 1.0 mm. in size), arterioles, and capillaries. The emboli in the lungs consist of particulate matter found in amniotic fluid and meconium; that is, epithelial squamae, amorphous debris (vernix caseosa), lanugo hairs, and mucin thought to be from meconium. The blood vessels are dilated. Experimental data with rabbits and dogs, as reported by Steiner and Lushbaugh in the same paper, reduplicated the clinical and pathological findings of the human cases. For these experiments, they injected amniotic fluid and meconium intravenously.

The differential diagnosis is extensive and includes postpartum hemorrhage, placenta previa, abruptio placentae, pulmonary air embolism, vascular thrombotic pulmonary embolism, and eclampsia without convulsions.

No specific preventive therapy is available, since it is difficult to prevent excessive vernix caseosa and meconium or uterine tetany. For

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treatment of the established lesion, they recommend measures designed to combat shock, papaverine to abolish the reflex spasm of the pulmonary vessels, atropine to counteract the cardiac depression reflexes from the lung, and oxygen. Caution is urged against administering excessive fluids which might result in the formation of pulmonary edema.

Case 1.—Mrs. R. N. (U.H. 764084), a white woman, thirty-two years of age, was admitted to the University Hospital on April 11, 1946. The patient had had three previously uncomplicated pregnancies. The patient's last normal menstrual period was June 6, 1945. Her expected date of confinement was March 13, 1946. The patient developed a brownish vaginal discharge three days prior to admission to the hospital. Sixteen hours prior to admission she experienced a sudden loss of blood from the vagina unassociated with pain. Her local physician made a diagnosis of placenta previa and inserted a vaginal pack to control the bleeding while she was traveling to the hospital. At the time of admission, physical examination revealed the abdomen to be distended by a gravid uterus of term size. The fetus was in the L. O. T. position with the head somewhat displaced to the left of the inlet. The fetal heart was easily heard in the left lower quadrant. Since the patient was potentially infected as a result of the intravaginal packing, and because the patient was not bleeding at the time of admission, it was felt that delay in further management of the patient was indicated. The hemoglobin at the time of admission was 11.6 grams. The vaginal pack was removed and blood was made available for immediate transfusion. X-rays of the abdomen using soft tissue technique demonstrated the placenta on the anterior wall of the uterus well down into the lower uterine segment. Sixty hours after admission a moderate amount of fresh bleeding occurred. Vaginal examination at this time revealed an uneffaced cervix dilated two centimeters and through which placental tissue could be felt in all directions. The patient did not bleed following examination. Her pulse and blood pressure were normal. A classical cesarean section was done under local anesthesia allowing delivery by breech extraction of a male infant weighing 4190 grams. The placenta was situated on the anterior inferior wall of the uterus and covered the cervical os. It was removed manually following delivery of the child. The uterus contracted firmly and very little bleeding occurred. The amniotic fluid was very heavily stained with meconium and had a greenish, bile-colored appearance. It contained many small particles of bile-stained vernix. The infant made two respiratory efforts but did not inspire. The respiratory tract was filled with the green amniotic fluid which could not be aspirated with the bulb syringe. Bronchoscopy was done at once but the material could not be aspirated even with mechanical suction. The infant died in five minutes. Following delivery of the infant, the patient complained of rather severe pain in the abdomen and she was given 375 mg. of pentothal intravenously. Approximately five minutes after induction of the pentothal it was noted that the blood in the operative site was getting dark. A few seconds later it was noted that the patient was not breathing. An airway was inserted immediately and artificial respiration started. The patient's pulse

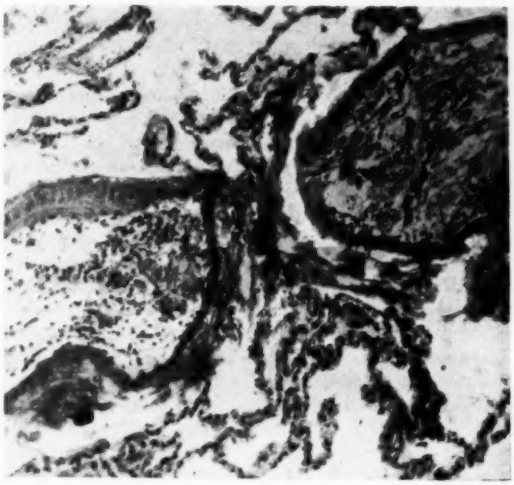


Fig. 1. Case 1. Photomicrograph demonstrates two small pulmonary arteries filled with protein material and leukocytes.

and blood pressure were not perceptible. Palpation of the aorta and auscultation of the heart revealed death of the patient. There were no warning signs such as gradual drop in pressure or alteration of the pulse. The patient expired about seven minutes after the uterine wall was incised and five minutes after starting the pentothal anesthesia. Autopsy consent was obtained for infant and mother.

Autopsy report (A-46-593) *Mother.*—Pertinent findings grossly were few. Cyanosis was present and there was an 18 cm. midline, lower abdominal surgical incision closed with silk. The heart weighed 280 gms.; no gross abnormalities were found. There was no pulmonary thrombotic or air embolism. The lungs weighed 230 and 200 gms. on the right and left, respectively; grossly nothing abnormal could be found, no meconium, thrombi, emboli, infarcts or edema. The uterus extended 16 cm. above the symphysis and showed a closed anterior incision for cesarean section; the site of attachment of the placenta was seen around the internal os. The uterine wall was up to 4 cm. thick. Otherwise, the genital organs were normal, as were the remaining organs and systems of the body with the exception of a persistent urachus. Examination of the brain was not permitted.

Microscopic Findings.—

Lung: The small arteries, arterioles and capillaries were filled with epithelial cells, protein material in strands, and leukocytes, with remarkably few erythrocytes seen. The parenchyma was otherwise normal.

Uterus: Some of the sinusoids were filled with cells

suggestive of epithelial nature. The other changes were typical for the regnant state.

Breast: There were changes typical of the gestational breast with large lobules of acini in which fat globules were seen.

Urachus: This contained a dense polymorphonuclear suppurative exudate in its lumen. Heart, spleen, kidney, liver, ovary and lymph nodes were all normal.

Autopsy Report (A-46-592) *Fetus.*—Gross appearance: The child was a well-developed male infant weighing 4150 grams. The eyes were normal, the sclerae not icteric. The skin was not macerated, but all cutaneous folds and recesses were filled with vernix caseosa which was stained a marked yellow from pigment in the amniotic fluid. The color of the umbilical cord was a dark yellow-green. The abdominal viscera were essentially normal to gross inspection. The stomach and entire small bowel were distended with a thin greenish-yellow fluid. No meconium was found in any portion of the gastrointestinal tract. The right lung weighed 105 grams, the left 70 grams, neither floating in water. The pleural surfaces showed multiple white blebs (ruptured alveolae) on a reddish-purple background. No crepitant areas were palpable. The cut surface of the pulmonary tissue released a profuse yellow-green fluid, somewhat tenacious in the bronchi and trachea. Other organs were grossly normal. The cranial vault was not examined.

Microscopic Findings.—The lungs showed no areas of normal alveolar structure. The majority of bronchioles were incompletely blocked by desquamated epithelial cells with occasional ones showing a yellowish granular material, and, rarely, fibrous strands suggesting lanugo hairs. Generally the alveolae were distended, the content being a fine granular precipitate, with occasional epithelial cells. The pulmonary vascular bed contained only normal cellular elements. The pancreas showed acini and ducts dilated by inspissated debris, mild cystic changes in the tubules. The other organs were not worthy of special comment as to microscopic appearance.

Case 2.—Mrs. V. N., a primiparous, white woman, thirty-one years of age, was admitted to a local hospital in labor at 10:00 P.M. on March 20, 1941. The pregnancy had been uneventful until three hours after onset of labor. At that time a small amount of uterine bleeding occurred which persisted until delivery. Five hours after admission she was delivered of a normal living infant by low forceps. The labor pains were not recorded as being unusual. Two minims of pituitrin were given by hypodermic injection 30 minutes prior to delivery. Moderate bleeding occurred following the delivery which was not checked by the expression of the placenta. The patient was given ergot and pituitrin subcutaneously with no appreciable effect upon the contractility of the uterus. The cavity was then packed with gauze. Intravenous gum acacia was administered and the patient prepared for laparotomy. A blood transfusion was started and the abdomen was opened. Clamps were placed on the uterine vessels, but the patient expired suddenly at this point.

Autopsy Report (A-41-672).—There was no cyanosis. A 10 cm. midline abdominal incision extended above the symphysis and had eight sutures in place. The peritoneal cavity contained about one liter of serous fluid, and the heart, lungs, liver and spleen were normal grossly. The uterus was globular in shape and measured 24 cm. in length and 12 cm. in width; the cervix was 8 cm. long. A laceration measuring 8 cm. in length and 12 mm. in depth began at the internal os and extended through the thickness of the lateral wall of the uterus. In the broad ligament opposite this laceration was a large hemotoma. A smaller laceration was found on the opposite side of the uterus, arising at the internal os and extending upward 3 cm. but not through the entire thickness of the wall. The cervix showed no gross tears.

Microscopic sections of the lungs showed a mucinous material filling the small arteries; numerous epithelial squamous cells were seen, and there was a marked reduction in the number of blood cells in these vessels. There were no thrombi in any vessels. The remainder of the lung parenchyma was normal. Section of uterus showed considerable necrosis of the myometrium beneath the tear. The remainder of the examination was without note.

Discussion

The first description of amniotic fluid embolism to the maternal pulmonary system by Lushbaugh and Steiner in 1941 offers an explanation for some otherwise unexplained sudden maternal deaths. The second report published by the same authors in 1942 included a case almost identical with Case 1 in our report. Their patient died following cesarean section for placenta previa. In the two patients delivered by cesarean section we must assume, as they do, that the fluid gains entrance to the maternal circulation through the open veins of the uterine wall at the site of the incision. It is sufficient to say that the obstetrician should consider this newly described lesion when confronted with profound shock during and after labor or the sudden unexplained death of the patient.

The diagnosis is conclusively made in cases such as these only pathologically. Grossly, there is a paucity of findings, but other causes of sudden death should be carefully searched for. These include pulmonary embolism both by thrombus and by air and other cerebral and cardiac pathology. Only by microscopic examination are the classical features found. These consist of meconium, mucin, lanugo hairs, vernix caseosa, and

(Continued on Page 97)

History of Medicine In Minnesota

NOTES ON MEDICINE IN FREEBORN COUNTY, 1857—1900

ANDREW GULLIXSON, M.D.
Albert Lea, Minnesota

(Continued from December issue.)

Dr. Justin M. Hull came from Cook County Hospital and located at Albert Lea in April, 1874. He re-located the same year at Lake Mills, Winnebago County, Iowa. He is claimed a pioneer physician of that county and his history is recorded there. Records reveal however, that he did practice for short periods at Alden and Albert Lea. He was the son of Rev. O. P. Hull and was born in Dane County, Wisconsin, July 9, 1845. He served fourteen months in the Third Wisconsin Volunteer Cavalry, from 1862. He graduated from Bennett Medical College, Chicago, in 1873.

"Dr. Hull was one of the pioneer physicians of Winnebago County, having located in Lake Mills in 1874 and continued in practice until his death in April, 1889. He was a man of powerful physique, endowed with an unusual amount of personal magnetism, an apt student of human nature, and accurate in his estimates of men. He was eminently fitted to attract and hold a large circle of friends."—*Winnebago County History*, 1917.

Dr. H. H. Wilcox was born in South Carolina, December 28, 1850, and was a child when his parents moved to Kentucky. There he grew up; and after finishing school and teaching for a time, he entered the Cincinnati Medical College, where he graduated with honors, receiving a gold medal for his excellent scholarship. He married Ellen Abbot of Kentucky, in 1875. In 1877, with his wife and infant son, Leslie, he moved to Glenville, Minnesota, where he practiced his profession for several years and where his twin daughters, Gussie and Jessie, were born. He moved to Albert Lea in 1883, where he continued an active practice for many years. He established a private hospital later and for a time edited the *Albert Lea Medical Journal.* He took an active part in local and state politics, served as mayor for one term and as city health officer at different times. In 1905 his wife died, and a few years later he married Laura Hydorn. To this union one son, Richard, was born. He was a member of the Methodist Church, Western Star Lodge, and Apollo Commandery (*Albert Lea Evening Tribune*, December 15, 1925).

Dr. Wilcox was a solid general practitioner. He was apparently well read in medicine and surgery, and was filled with the urge of spreading the knowledge of modern medicine relating to isolation, antisepsis, disinfection, and sanitation in infectious and contagious diseases as revealed in the 1880's by Pasteur, Koch, Lord Lister, Loeffler, Elrlich, and others.

"Dr. Wilcox proposes to issue the first number of *the Albert Lea Medical Journal,* a monthly publication devoted to modern medicine, surgery, and prophylactic medicine. The *Journal* will be 7 in. by 10 in. in size and contain twenty pages of reading matter. The first issue will consist of one thousand copies. The long experience and practical ability of Dr. Wilcox, and his high standing as a citizen, is sufficient voucher for the character of the publication and should recommend it to the profession and the public and assure its success."—

Standard, August, 1898. "The *Journal* scintillates with wise and keen observations, which the general reader, equally with the profession, cannot fail to enjoy."—*Standard,* November, 1898.

The *Albert Lea Medical Journal* was published only a short time. There are a few copies—the only ones known to exist—in the library of the Minnesota State Medical Association in St. Paul.

Dr. Wilcox had a good command of the English language and contributed freely, to the local press, articles relating for the most part to problems of health and sanitation. In 1896 he contributed a splendid article on "Contentment," in which he deplored the fallacy of sending patients away to Colorado or to other dry climates for the purpose of regaining health. "There is something nice," he wrote, "about dying at home anyway; but how dreadful the thought of some poor homesick youth dying by inches away from home and among strangers. Think carefully before you send anyone away from home; then don't send them but go and take them." In November, 1896, he contributed an article titled "Tuberculosis" (Consumption) in which he describes it as a contagious disease, explains methods of transmission, urges strict isolation, and advises care in disposing of sputum and excretions. In the same month he contributed a long well-written article on diphtheria and quarantine, giving details of early history and quotations from ancient writers, showing that they were familiar with this malady. He describes also the work of Loeffler in isolating the bacillus, outlines modes of infection, and urges early call of a physician to establish diagnosis.

Dr. Wilcox was an ardent temperance man, and in December, 1896, contributed an article on liquor and the physician under the title "Medical Talks."

"Alcohol is a medicine of no little consequence. It is a stimulant, tonic, narcotic, sedative, nutrient, irritant, antiseptic, and antiphlogestic. It will make the rich man poor and the poor man rich. It will increase appetite and set up catarrh of the stomach. It will increase activity of the liver cells, causing the liver to enlarge, then reduce it to a nutmeg lump. It will increase a feeble heart to quick action and reduce a strong heart to weak action. I do not hesitate to prescribe it for those whom I know, and think need it."

At a meeting of the Science Society, February, 1892, Dr. Wilcox presented a paper on psychosomatic phenomena. "It was historical and many illustrations were given of unexplainable dreams and hallucinations. The discussion was lively."

Dr. Wilcox was nominated for the office of county coroner on the Farmers' Alliance ticket in 1890. In declining this nomination, he told that in his boyhood in Kentucky his father and brother served in the Union Army; that he had cast his first vote for General Grant, and later had voted for Hayes, Garfield, and Blaine, whose party had fought to save the Union and that now this party was "neglecting to take radical measures by which we might be emancipated from the whiskey curse. My anxieties to suppress the whiskey evil arose to John Brown proportions, and because I could not proclaim them freely in the Republican party, I joined the Prohibition party." Dr. Wilcox was elected to the office of mayor of Albert Lea in 1890. In 1891 he was appointed surgeon of the Minneapolis and St. Louis Railroad. In 1894 he was a candidate for state senator, highly endorsed by the press as honest, honorable, and able. In 1906 Governor Cole I. Crawford of the State of South Dakota appointed Dr. Wilcox surgeon in charge of the state soldiers' home at Hot Springs, a position that he retained until his death there in December, 1925.

Dr. S. H. Washburn located at Albert Lea in June, 1876, with offices over Wood's drug store. He came from Hattisburg, Illinois, and practiced here about two years and then located at Mason City, Iowa, where he had a large practice.

Dr. F. W. Beck located at Albert Lea in August, 1878. He practiced here less than two years and acquired a large circle of friends during his residence here. Unfortunately, Dr. Beck was a confirmed alcoholic and soon got into trouble. "He was a young man of fine talents and of rare attainments and was highly esteemed by those who knew him."—*Standard,* Aug., 1878. Dr. Beck died at his home in Chicago in August, 1879.

Dr. Johanna Disbro, "a graduate of the medical department of Iowa State University, left a practice in Centerville, Iowa, to bring her brother, a consumptive, to Minnesota. She practiced at Albert Lea in 1883. The following year she married a Mr. Crawford of Minneapolis. She was a homeopath.—*Excerpts, Nora Guthrie.*

"**Dr. W. T. Leonard** of Mauston, Wisconsin, locates at Alden. He appears to be a perfect gentleman and one who knows his business. He comes highly recommended for his ability and integrity. He is a blue-ribbon temperance man." *Enterprise,* May, 1878.

Dr. Leonard was not at Alden very long, perhaps less than a year. A local newspaper item in 1879 states that he returned to Alden for a visit—but where he went is not known. In 1900, according to the medical directory of that year, he was located at Campbell, Wilkin County.

Dr. R. C. Pinkham announced his location at Albert Lea in 1879 by a newspaper item stating he was "permanently located at Albert Lea. I devote my entire time to treatment of chronic diseases. I will cure a case of hemorrhoids in ten days; female weaknesses a great specialty."—*Enterprise,* July 24, 1879. He evidently was an imposter as no further record is found to indicate that he established a practice at all.

"**Doctor ——— Green,** from the west part of the county, attended an accidental shooting and removed a bullet."—*Standard,* 1876. Dr. Green evidently moved to Windom, Minnesota, as a local notice in the *Standard* of June, 1879, states that he returned from that place to Alden on a visit.

Dr. Eugene M. McCord was born at Titusville, Pennsylvania, in 1854, but spent most of his early youth at Waverly, Iowa. He came to Freeborn County in 1877 and entered into partnership with Dr. W. H. Smith, coroner, in the drug business and in practice. In the files of the local newspapers for May, 1878, there is an item to the effect that Dr. Smith and Dr. McCord conducted a post-mortem examination and stomach analysis in a case of death by strychnine poisoning. Another item in an issue in October, 1877, states:

"I have purchased the drug store formerly owned by Dr. G. W. Bark and propose to continue in the same old stand. I am a druggist and when I say druggist, I mean a compounder of medicines, understanding the business from A— to izzard. Physicians' prescriptions carefully compounded."

He apparently had studied pharmacy and read some medicine in Philadelphia before locating at Albert Lea in 1877. An item dated Sept., 1878, states that "Dr. McCord left for Philadelphia to take a course of lectures in one of the leading medical colleges in the country." Another item, dated March, 1879, says:

"Dr. McCord will hereafter keep a temperance drug store. You can always find pure drugs, medicines, and chemicals for prescriptions. We only ask you to try our 'Bitter wine and iron,' which is a pure extract of roots and citrate of iron preserved in the best quality of grape wine, and no poisonous compounds calculated to kill more than it cures." An item dated April, 1879, says, "Diphtheria is a disease caused by blood poisoning and the best way to save your children from the dreadful scourge is by taking 'Bitter wine and iron,' found only at C. W. McCords." An item dated August, 1881, states that Dr. McCord was representing a wholesale drug firm of Chicago. Another item, October, 1882, states that he was publishing a paper in Jasper County, Nebraska.

He did, however, finally graduate in medicine, namely, from the Jefferson Medical College, Philadelphia. He then moved to Luverne, Minnesota, and in 1884 located in Saint Paul and enjoyed a long and extensive practice there, serving for a number of years on the Saint Paul City Hospital staff. He died in Saint Paul in December, 1913. His obituary appeared in the *Pioneer Press,* December 22, 1913.

"Dr. Oscar H. Trenkler, formerly of Portage, Wisconsin, a medical graduate from Germany and a practicing homeopathic physician in the United States for twenty-two years, locates at Albert Lea."—*Enterprise*, Aug., 1879. Dr. Trenkler moved to Mankato in May, 1881.

Dr. ——— Preston, born in Connecticut, located at Alden in 1878. He is described as a pleasant and agreeable gentleman and given much credit for his skill as a surgeon and as a general practitioner. He sold his drug store and practice to Dr. H. V. Perry in 1880 and moved to Youngstown, Ohio. He later returned to the West and located at Decorah, Iowa, where records state that he earned a high reputation as a physician. In April, 1889, he returned to Freeborn County, bought the drug store at Alden, and was again welcomed with a good practice. In a very short time he again sold out and returned permanently to Youngstown, Ohio.

Dr. Arne Nelson located at Hartland in 1878. He practiced there through 1879, and in 1880 located at Aldal, Polk County, Minnesota. People now living at Hartland remember him as practicing there only a short time.

Dr. John R. Jones was born in Green County, Wisconsin, in 1853. His father and mother both came from England. His mother died when John Richard was a small boy. His father married again and came to Freeborn County in 1867. John attended high school at Albert Lea, attended medical schools in Cincinnati and Chicago, then read medicine with Dr. Rowland of Twin Lakes, and no doubt practiced some with him. Dr. Jones did no private practice in this county but did practice for a time at Fertile, Iowa. He married Zella Williams, a half sister of Dr. Rowland's wife.

Dr. H. V. Perry came to Alden in 1880. "We understand that Dr. Preston is about to transfer his extensive practice to Dr. H. V. Perry, M.D., of White Hall, New York. Dr. Perry is a man of culture and fine abilities and well worthy of the confidence and patronage of our readers, having had in addition to a thorough course at Washington Medical University of Baltimore, Maryland, the honor and advantages of being nearly two years the resident physician in the hospital connected therewith and also several years' experience in private practice."—*Alden Eagle,* January, 1880.

Much of Dr. Perry's time at Alden was devoted to the drug business, and in 1887 he moved to Albert Lea, where he bought a drug store. There is no record of his doing any general practice here. He was not married.

In 1888 Dr. Perry sold his stock, drugs, and other goods and moved to Ellensburg, Washington. "Dr. Perry reports that he is doing well and having a profitable drug business besides his practice."—*Standard,* March, 1888.

Dr. E. M. Woodring was evidently a pioneer doctor of unusual ability and high intelligence. He came to Albert Lea late in the year 1880 and established a partnership with Dr. W. W. Smith, which continued through 1881. He was born on a farm in Green County, Wisconsin, date unknown, and was for a time telegraph operator at Mendota, Minnesota. He entered the Ohio College of Medicine and graduated with highest honors, taking the faculty prize in 1880. He practiced for a time at Green, Iowa, before he came to Albert Lea. He was regarded by all as a gentleman but in some respects as strange in his conduct. His associates at the college hospital in Ohio, where he was an assistant professor lecturing in medicine, stated that he often showed signs of marked excitability.

When he moved to Minneapolis in 1882, he became involved in an assault that resulted in arrest and conviction. Dr. Woodring had ordered an operating table from the Knickerbocker Company. The next day he returned the table, remarking that if he could secure a suitable table he would accept it and pay for it. The table was placed on the sidewalk and the following notice placed on it, "This table is brought back from Dr. Woodring's office because he would not pay for it and is for sale cheap." Soon afterwards, on meeting Mr. Knickerbocker on the street, an altercation arose, ending in the doctor's saying, "I will fix you in two hours." He consulted as to his legal rights in the matter and returned to his office. Here he armed himself with a long sharp knife of razor steel, used in hip and thigh amputations. Concealing this in his sleeve, he returned to Knickerbocker's store, where he found the offensive note again displayed on the table. During the ensuing altercation he drew his knife and made a lunge at Mr. Knickerbocker, but the latter deflected the blow and caught the blade above the elbow, which penetrated the axilla, missing the artery. Two employes overpowered the doctor, but in the struggle one was severely cut on the head. The doctor was promptly arrested, but released on bond of $1600 secured by Dr. France, Dr. Abbott, and Dr. Small. His trial drew a sentence of penal servitude, but his bondsmen and other influential friends secured a governor's pardon. The foregoing consists of quotations taken almost verbatim from *Albert Lea Enterprise,* May, 1882. Judging from the action of prominent bondsmen and other friends, Dr. Woodring must have been held in high regard by his colleagues and the public in general.

Dr. L. C. Biglow, a brother of C. S. Biglow of Owatonna, located at Albert Lea in March, 1880. He came from Muscatine, Iowa. He attended the State Medical Association's meeting in June, 1881, but in July of that year moved to Denver, Colorado.

Dr. M. L. Cutler, physician, surgeon, and electrotherapeutist, located at Albert Lea in 1880. He was born and raised at Osage, Iowa, came to Freeborn County from Frankfort, Iowa, and had a long experience in his profession. He practiced here only a short time and moved to Dakota City, Iowa, in 1882. An item appearing in the *Freeborn County Standard,* August, 1890, reads as follows: "Dr. L. M. Cutler, a former resident of Albert Lea, now of Saint Paul, was found dead in bed. His family was away at the time. Death was supposed to be due to heart disease. Autopsy revealed hemorrhagic ulcers of the lungs."

Dr. Melchoir Magelssen was born in Christiania (Oslo), Norway, in April, 1852. His father served as chief of police in the city of his birth until 1859, when he moved to Bergen, Norway, where he was made a magistrate. Dr. Magelssen came to America in 1881 and located at Albert Lea, in 1882, where he had a good practice until 1888, when he moved to Fergus Falls. He married Elizabeth Marie Hansen in 1883. To them one son was born in 1885. He died at Fergus Falls in 1895, aged 43.

The subject of this sketch spent his early days at school, attended the Latin College of Bergen (roughly equivalent to an American college) until 1869, when he entered the University of Oslo, from which he received a diploma as physician and surgeon in 1876. He continued his medical studies at the Royal University of Vienna, Austria, graduating in 1879, and completed his education in France. He then located in London, England, where he had a good practice, still continuing to study. He spoke and read the three Scandinavian languages besides English and German. He had a colorful personality, but the caste system of the old world, receiving accreditation by his contacts in Vienna and London, gave him an exaggerated notion as to the treatment physicians should receive from the general public in America. From a personal interview with a gentleman who knew him quite well, the following dictation was taken:

"Among other things, he felt that he was entitled to the right of way on highways, and he generally selected the middle of the road. This got him into a great deal of trouble with folks he met on the roads and trails, especially when the snow was deep in the winter and in the springtime when roads were narrow or breaking up. I recall that one time he published an advertisement to the effect that, on and after a certain date, he would display in a prominent window, the names and addresses of patients who owed him money and paid nothing on accounts for thirty or sixty days. He did post this list, and it caused considerable talk around town. Some disputed the accounts and threatened suit against him; some gave him severe tongue lashings; and a few landed short hooks to the jaw. I recall that the doctor said that, between the time of his advertisement and the publication of his list, collections were brisk."

While in Albert Lea he was offered a position as surgeon in a Brooklyn hospital, but he refused the appointment because of his large practice here.

He was an able, well-qualified physician and surgeon and a gallant gentleman; but in comparison with his illustrious cousin, Dr. Jacob Magelssen of Rushford, his paths through life had not encountered the rough detours that provide the kind and amount of gravel in one's diet that seemed to be needed in the making of an American of his day.

Dr. ——— Torkelson was a druggist and established the first drug store in Hartland in 1882. All druggists in those days prescribed medicines over the counter, and so he was called "doctor." An item in the newspaper in 1886 states, "Dr. Torkelson, our doctor, druggist, and postmaster, is dead." He died of consumption.

Dr. Paul C. Jensen was born in Copenhagen, Denmark, April 7, 1855, and spent his boyhood and had his early schooling there. At the age of fourteen, in 1869, he accompanied the family to America, where they settled on a farm southwest of Blue Earth in Faribault County. He next came to Albert Lea and found employment in the Wedge and Spicer drug store. In 1877 he entered the University of Michigan College of Pharmacy. Following his graduation there he immediately entered the medical school of that university, from which he graduated in 1882. He began practice at Albert Lea, but after about a year and a half moved to Chicago, where he was soon appointed assistant city physician. In 1889,

he married Miss Kathryn Hansen of Glenville, Minnesota, who within a year died in childbirth. He moved the same year to Manistee, Michigan, specializing in ear, nose and throat diseases. Twice he held the office of city physician, his first term involving a severe epidemic of smallpox. His second term began in September, 1926, and continued until his death. His official duties caused him serious financial losses in his private practice. Dr. Jensen was identified with county, state, and national medical societies and contributed articles to the medical journals. From his obituary the following sentence is culled, "All who knew him agree that he was an example of practical Christianity, tender as a husband, loyal as a friend, hospitable and cordial in the home, and sympathetic in the sick-room." On September 12, 1900, he married Dorothy Dimple Peach. No children were born to this union. He died of heart disease at his home in Manistee in the summer of 1931.

Dr. G. A. Stevenson, physician, surgeon, and specialist in diseases of the rectum, eye, ear, nose, and throat, was born near Chatfield. He located at Alden in 1884. A card dated April, 1886, reads:

"Dr. G. A. Stevenson, rectal diseases a specialty, cure painless, no knife or ligature used in treatment, cure guaranteed; piles, fissure, fistula. Send for illustrated circulars. Brinkhoff system used."

In January, 1887, Dr. Stevenson moved to Albert Lea but retained a partnership in the practice and business he sold to Dr. Cannon at Alden. In March, 1888, he moved back to Alden to practice but the same year sold his home to Dr. Cannon and returned to Albert Lea after taking postgraduate work in diseases of the rectum. In 1890 he attended the Chicago Polyclinic, taking a "refresher course." In 1891 he felt that his specialty was detracting from his general practice, as would be indicated by the following notice, "Dr. Stevenson has added an attractive sign to his windows and they are so plain that he who reads may run, and he who hears may learn that he is successfully treating all diseases."—*Enterprise*, January, 1891. "Dr. Stevenson moved to Alden Township, where he owns thirteen hundred acres of Freeborn County dirt, but will be in Albert Lea part time to look after his special practice."—*Enterprise*, October, 1892. In December, 1894, "Dr. Stevenson returned to Albert Lea as a permanent citizen. He rented his stock farm in Alden Township and bought a beautiful lot on Park Ave., Albert Lea."—*Enterprise*, December, 1894. He never did build a home on this lot, and as he refused to sell at a good price, it was finally turned back for taxes. In the early 1920's he went to Europe and studied eye, ear, nose, and throat work in Vienna. Returning in about two months, he practiced his specialty in Albert Lea and surrounding towns for a number of years, but retired in the early thirties.

Dr. Stevenson was a bright man, but he wrote his own ethics and lacked in human understanding. As with many, the doors were not guarded against some of the human frailties. He was a good doctor and did much good in an irregular way. He died an old man.

(To be continued in the February issue.)

ERNEST M. HAMMES, M.D.
President, Minnesota State Medical Association

President's Letter

THE COMING YEAR

I wish to take this opportunity to express to the members of our Association my appreciation for bestowing upon me the highest honor in the Minnesota State Medical Association. Having served on many committees and on the council for several years, I fully realize that the responsibilities and duties of your president will be greatly lightened by the continued co-operation of and assistance from these various committees. It has always been a marvel to me how regularly committee members attend meetings in Saint Paul, in rain or shine, and frequently travel long distances in spite of snow and icy roads. To the Twin City members this is a light chore by comparison. But such is the co-operative spirit of the members of our Association, resulting in the high standard of accomplishments by our medical profession.

The most delightful part of my new job will be to have an opportunity to meet my many friends at county medical meetings, and I do hope I shall be able to attend many of them. The only regret I have is that my office as councillor of the Fifth District has terminated. Your president is expected to attend all Council meetings, but he does not even have a vote in Council matters. Serving on The Council has been a most delightful and instructive experience, and a privilege to be associated with men whose wholehearted effort is to adjust and solve the many problems that confront our State Medical Association. I can assure you that some of these problems have been serious, necessitating long hours of deliberation, frank discussions, keen judgment and conscientious efforts. Men like Dr. L. L. Sogge of Windom, who has served on The Council for twenty-three years; W. W. Will of Bertha, for twenty-one years, W. L. Burnap of Fergus Falls, for fourteen years, and others have given of their time, ability and energy to an unlimited degree. This service can never be repaid, and we can only express our appreciation for their long and untiring service.

I should like to correct some erroneous impressions. I have been told on several occasions that members of The Council attempt to be self-perpetuating. Your councillor is selected by the members of the county societies from his district. His name is presented to the House of Delegates by his district at the annual meeting, and he is elected by that body. Members of The Council do not even have a vote in this election. Another complaint that has been voiced is that members of our State Medical Association have been unable to appear before The Council to present their problems. I am sure that if such a request is made to Mr. R. R. Rosell, our executive secretary, he will arrange that any member of our Association will be invited to The Council meeting and will be given ample time to discuss any important matter. Members of your Council are your elected servants, and their only desire is to keep our ball rolling smoothly, ethically, medically, professionally, and politically.

I fully realize that during the coming year many problems of a serious nature will arise. With our state legislators in session and a Congress in Washington with a dubious attitude toward scientific medicine, measures may be instituted, detrimental to the medical profession, but more important, detrimental to the public as a whole and to the progress of scientific medicine. I feel confident that the untiring effort that every member of our State Medical Association has manifested in the past will undoubtedly continue during the coming year. With the able assistance of Manley Brist, our legal adviser, and R. R. Rosell, our executive secretary, our ship will sail through these turbulent waters, and scientific medicine will maintain its high degree of efficiency in every field.

In closing, I wish you and yours a healthy, happy and prosperous New Year.

E. W. Hammes, M.D.

President, Minnesota State Medical Association

Editorial

CARL B. DRAKE, M.D., *Editor;* GEORGE EARL, M.D., HENRY L. ULRICH, M.D., *Associate Editors*

THE TWENTY-FIVE DOLLAR ASSESSMENT

SOME see in the re-election of President Truman a mandate to Congress to pass a compulsory national health insurance bill. If this proposal had been a plank in the Democratic Platform, such a view would have some weight. Simply because the President has gone on record as approving the Wagner-Murray-Dingell Bill and was re-elected does not mean that everything he has favored should be considered by Congress as a mandate. The Democratic platform states, "We favor the enactment of a national health program for expanding medical research, medical education and hospitals and clinics." Compulsory health insurance is not a part of the party platform.

Since the election, Oscar Ewing, Social Security Administrator, has been carrying on an active one-man campaign by radio, press conferences and announcements issued from his office insisting on the need for this legislation and making extravagant statements about what nationalized medical care would do for the health of the people. He has tried to break down the confidence of the public in the medical profession by every known technique and has made such statements as the lives of 140,000,000 persons are more important than the wishes of 180,000 physicians. This, of course, infers that the profession is opposed to this legislation for selfish reasons. If Ewing's statements that 300,000 lives could be saved if only his proposals were adopted and that 70,000,000, or half of the population, are without proper medical care were true, he would have a good argument. No one can deny that medical care in these United States is better under the present private enterprise than in any other country in the world under governmental control of medicine. Governmental control in this country would similarly result in deterioration in medical practice.

We have had, since November 2, a sample of the tactics which are to be used by the proponents of national health insurance. These individuals have the advantage of the use of millions (some estimate $70,000,000.00) of governmental funds for propaganda use. Although such use of tax funds is absolutely unconstitutional, this practice continues.

Compulsory sickness insurance, notwithstanding misleading propaganda to the contrary, is a variety of socialized medicine or state medicine and possesses the evils inherent in any politically controlled system. It results in deterioration of medical care. This is the main reason why we, as a profession, oppose it.

We repeat the statement that state medicine is a forward step in the eventual socialization of the entire national economy. We, as a profession, are not alone in our championship of private enterprise, and we should and will have powerful backing from others who value freedom of enterprise rather than socialism.

The issue is becoming more clear-cut as one between voluntary sickness insurance and compulsory government insurance. It is perhaps not generally known that over 32,000,000 individuals are now protected by Blue Cross hospital insurance; that the number of individuals covered by Blue Shield medical policies has jumped from 2,845,000 in 1946 to over 10,000,000 in 1948; that commercial indemnity companies cover an additional 20,000,000 for hospital care, 15,000,000 for surgical and 2,000,000 for medical care. Soon it will be as foolhardy not to insure against catastrophic sickness as against fire. Thus, voluntary insurance is doing much and will do more to help meet the admittedly high cost of sickness, and this is a good argument against the need for compulsory insurance.

If the public wants compulsory health insurance with at least a 4 per cent wage deduction, with increased bureaucracy and regulation in Washington, they will obtain it. We believe that a well-informed public will prefer to continue the present status of medical practice. The medical profession has accepted the task of informing the public. By unanimous vote of the House of Delegates assembled in St. Louis in December, our delegates

pledged our membership to self-assessment of $25.00 per member to provide the necessary funds to carry out the enormous task of informing the public about the issue. We have the handicap of unscrupulous opponents with many more millions at their disposal for propaganda purposes. Ours is not an impossible task. The story of Governor Warren's effort to put over state medicine in California is reassuring. The medical profession of the state assessed itself $100 a year for three years and by a superhuman effort was able to combat the opposition of a coalition governor and the labor unions and prevent the passage of the bill by a majority of one vote in the legislature.

Physicians pay no dues to the AMA. County society membership automatically makes them members of the AMA. Subscription to an AMA publication makes them fellows of the Association, and such subscriptions barely cover the cost of the publication. Even the increase in subscription dues (so-called Fellowship dues) from $8 to $12 in 1947 has not prevented the Association from going in the red.

We sometimes hear our fellow members inquiring why the AMA does not do something to stem the recent current towards government control of medicine. The AMA is now going to do something and requires the contribution of $25 from every member. A national planning committee has been appointed. The Washington office will be enlarged, and publicity experts will be employed. The bulk of the money raised will be used to inform the public on the issues involved. With the knowledge of the seriousness of the present situation which we have attempted to outline, there should be no dissenting voice.

PUBLIC RELATIONS

ON December 3, 1948, the Friday preceding the interim session of the American Medical Association held in St. Louis, representatives of forty-three states and Hawaii met to discuss public relations. The meeting was such a success that a similar but expanded meeting will be held at the next interim session.

Some interesting thoughts were expressed which merit emphasis.

No matter how efficient any group may be, it has to be sold to the public. This does not mean that every individual physician or medical group should blow its own horn, but it does mean that the accomplishments of medical science and the superiority today of medical attainments in our country over those in any other country should be publicized. We, as a profession, have been somewhat, but not wholly, lax in publicity activities. Such publications as *Hygeia*, radio broadcasting and newspaper articles on health subjects have partially supplied the desire on the part of the public for medical information. Yet the newspapers complain of the difficulties they encounter in obtaining medical news. Provision should be made for news releases in connection with all medical meetings by some designated individual or committee.

After all, the individual physician is the best medical publicity agent in the world. There is nothing new in this statement. Physicians have always used their personal contact with patients in building their practices. But relatively few realize their opportunities in daily contact with patients for disseminating the facts relating to the advantages of the American system of private practice over governmental control.

The physician as an individual can sell the present system of private practice in other ways to the public. He can see to it, when unable to make a call or when the nature of the case is outside his particular field, that the call is filled. He can consider the patient's pocketbook in the matter of unnecessary calls, needless hospitalization and laboratory procedures and overcharging. Avoidance of unnecessary operative procedures should not have to be mentioned. The application of the Golden Rule is all that is necessary. The doctor who breaks the Golden Rule in these respects more than counteracts the good public relations accomplished by the many.

We, as a profession, have laid ourselves open to considerable criticism, in that patients too often encounter difficulties in obtaining a physician's services at night or in case of an emergency. A constructive step in correcting this situation and in thus improving our public relations is the institution of a twenty-four hour physicians' telephone service at a local hospital or a physicians' exchange to provide for substitutes and for night calls. A little publicity and co-operation on the part of the local profession will assure the successful operation of the plan. The Council on Medical Service and Public Relations of the Wisconsin State Medical Association has recently

asked all component societies to take such action immediately.

The personal relationship between the patient and his physician constitutes the charm of private practice, and the scientific side of medicine or financial return must not be allowed to spoil that relationship.

EXPERIENCE WITH NITROGEN MUSTARD AND URETHANE IN THE LEUKEMIC STATES

THE use of nitrogen mustard as a therapeutic agent for lymphoblastoma and other neoplastic diseases is suggested by the fact that its qualitative effects are similar to, or identical with, those produced by roentgen rays or other types of irradiation. In experimental work, it was demonstrated that relatively small doses of the mustards could inhibit mitosis in actively proliferating cells without exerting demonstrable effects on nonproliferating cells. Somewhat larger doses resulted in evidences of nuclear and cytoplasmic injury. Clinically, a course of treatment usually consists of four daily intravenous injections of the drug in a dose of 0.1 mg. per kilogram of body weight. The dose of nitrogen mustard which is therapeutically effective for most patients will be followed, in two to three weeks after its administration, by lymphopenia, granulocytopenia and thrombocytopenia. Moderate anemia also may occur.

This action on the hematopoietic system makes mandatory re-examination of the blood in the month following treatment. It seems obvious that the susceptibility of the bone marrow to the depressing action of nitrogen mustard varies considerably among different patients. The immediate toxic effects consist of nausea and vomiting, coming on within three or four hours after administration and persisting for several hours. These effects often diminish in severity during the course of injections. As a rule, a period of at least four to six weeks is allowed to elapse between successive courses of treatment.

In the treatment of lymphoblastoma, it has not yet been determined whether nitrogen mustard can best be employed as the sole therapeutic agent or an adjunct to irradiation. The qualitative clinical response of previously untreated patients apparently is identical with that produced by irradiation in similar cases. As is true of roentgen therapy in cases of lymphoblastoma, the effectiveness of nitrogen mustard tends to diminish as repeated courses are administered.

In cases of Hodgkin's disease of long standing, in which the lesions have become refractory to roentgen therapy, nitrogen mustard often results in transient subjective improvement and occasionally produces a remission; usually, however, it cannot be expected to delay significantly the progress of the disease. Lesions of Hodgkin's disease which involve nonlymphoid organs usually do not respond well to this treatment. In general, the results obtained in treatment of lymphosarcoma have been less satisfactory and more unpredictable than those obtained in treatment of Hodgkin's disease.

In treatment of mycosis fungoides and cutaneous lymphoblastoma, nitrogen mustard has proved to be a valuable adjunct to irradiation therapy. Further remission of these conditions may be produced by nitrogen mustard after the lesions have become more or less refractory to the effect of roentgen rays. The two forms of therapy combined may well be effective where either alone is inadequate.

In treatment of malignant neoplasms other than the lymphoblastomas, some transient improvement has been obtained in cases of bronchogenic carcinoma. The outlook for the patient who has an inoperable lesion of this kind, however, has not been altered by introduction of nitrogen mustard therapy. Other malignant lesions have responded poorly or not at all to this agent.

The effect of nitrogen mustard on patients with chronic myelogenous leukemia or chronic lymphatic leukemia has been noted to be about equal to what might be expected from roentgen therapy under similar clinical conditions. Significant improvement cannot be expected in cases of acute leukemia.

Some encouraging initial results have been obtained in cases of polycythemia vera following nitrogen mustard therapy. It is believed that, as in leukemia, the effects may be shown to be at least as good as those obtained with irradiation.

The introduction of nitrogen mustard has opened a new and interesting field in therapeutics. First, the agent apparently exerts the same qualitative effects on tissues as does irradiation but is comparatively inexpensive and easily administered. Second, methyl-bis (beta-chloroethyl) amine hydrochloride, which is the nitrogen mustard most

frequently used clinically, is only one of a large family of similar compounds, and it is hoped that continued investigation will bring to light an agent of this type which will be therapeutically effective without exertng the undesirable toxic effects to which reference has been made. Meanwhile, much remains to be accomplished in the way of clinical investigation to determine what may be expected, under given clinical conditions, from the compounds now available.

In investigations of the action of urethane (ethyl carbamate) on tumor-bearing animals, it was incidentally found that in many cases there was a decided decrease in the number of leukocytes. This resulted in the therapeutic trial of this material in cases of leukemia, lymphosarcoma and allied diseases. It has been observed that normal leukocytes are more refractory to urethane than are leukemic cells. The mode of action of urethane is not understood, but it appears, on the basis of studies to date, that the action is associated primarily with inhibition of mitosis of immature cells.

Urethane has been used for too short a time to permit the formation of any definite conclusions as to its efficacy in leukemic states. This material does produce, in chronic forms of leukemia, palliative changes that are more or less constant. In acute forms of leukemia, little or no benefit is obtained from use of urethane, although the number of leukocytes in the peripheral blood may become rather rapidly reduced and a tendency for some maturation of immature forms may become evident. However, studies of the bone marrow have shown little if any change in the degree of immaturity. The clinical process continues to be acute and in no way is there sufficient change to warrant the use of urethane on other than an experimental basis in acute leukemia. On the other hand, the course of the chronic leukemias is somewhat modified by administration of urethane and the response of chronic myelogenous leukemia is better in general than that of chronic lymphatic leukemia.

Among different patients, there is great variation in tolerance to the drug and in the rapidity with which immature cells disappear from the peripheral blood. In some cases, relatively small doses of the drug—45 grains (3 gm.) administered daily for eight or nine days—will result in rapid remission; the blood will appear to be practically normal and there will be a parallel decrease in the degree of immaturity of the cells in the bone marrow. In other cases the response will be slow and a dose of 90 grains (6 gm.) daily for several weeks may be required to bring about remission.

An occasional person will prove to be unable to stomach the drug but usually, if the initial dose is small, 30 to 45 grains a day, untoward gastrointestinal reactions are minimal.

Chronic lymphatic leukemia has not responded particularly well to urethane although an occasional patient may experience a satisfactory remission. The same observation applies to patients with chronic leukemic reticulo-endotheliosis. Experience in cases of chronic myelogenous leukemia indicates that administration of urethane will control the disease fairly well hematologically and clinically, although there is no evidence that use of the substance will prolong life. With a small daily dose of urethane, the leukocyte count in most cases can be kept at a fairly satisfactory level (around 20,000 leukocytes per cubic millimeter of blood) for long periods. However, in spite of this, somewhat fulminating leukemia has developed in an occasional case, as evidenced by the character of cells obtained from the bone marrow on sternal aspiration. Interestingly, the picture found in the peripheral blood remains characteristic of a relatively chronic condition in these cases. Experience at Rochester has been that patients have progressively failed and have died with all the clinical evidence of fulminating leukemia.

Because of the convenience in administration of urethane, it offers definite advantages in palliative treatment or attempted control of the disease, but careful observation of the patient should be carried out at intervals of two weeks to a month and, if any elevation of temperature or other unexplained change in the general appearance of the patient should develop, administration of the drug should be discontinued. These, in our experience, may represent early signs of an acute change in the leukemic process. Sternal aspiration at such a time should be performed to confirm the diagnosis.

At present, in cases of chronic leukemia, palliation of symptoms can be obtained by use of various substances, but there is little evidence to date that such palliation greatly prolongs the life of a given individual. Occasional patients with chronic leukemia have, for various reasons, failed

to receive definitive treatment but have lived for relatively long periods, with few symptoms. Similarly, the clinical course of some persons who have received treatment at relatively infrequent intervals has been surprisingly satisfactory. Such instances must represent variations in the natural history of the disease processes concerned. Without a large control series of untreated patients, it does not seem justified to state that any known treatment significantly prolongs the life of the patient who has chronic leukemia.

C.H.W.

EWING'S PROPAGANDA FOR NATIONAL HEALTH INSURANCE

Recently Federal Security Administrator Oscar Ewing spoke before the convention of State and Territorial Health Officers in Washington on "The Job Ahead." Mr. Ewing said that national health insurance was the keystone to his proposed health plan.

Mr. Ewing said in part:

"Success (of the government health plan) depends on what the people themselves are willing to do about it.

"For that reason we must start laying the groundwork now. Every community must organize its own committees to analyze the plan in relation to its own community resources and community needs. These committees must establish liaison with similarly organized state groups under your leaderships charged with coordinating these resources and meeting demonstrated needs in a state-wide program.

"Equally important is the need to start, now, a state and local campaign of education to explain the scope and purpose of the plan and to demonstrate what it will mean to the health and well-being of every citizen of the community—to rally all business, professional and civic organizations, together with the churches and the labor unions, for an all out effort to start the ball roliing.

"To set such a project in motion requires responsible state and local leadership. It requires the unstinted faith and determination of men and women who can spearhead such a campaign and carry it through to a successful conclusion.

"I am putting this up to you, as an organization and as individuals, to undertake this responsible job. We are set to go on the most comprehensive program of health that has ever been offered to the people of the United States.

"If we all put our shoulder to the wheel we can translate this program into a living reality. And with the facilities we shall be able to command we shall create a standard of health and well-being for the entire country, such as no nation has ever dreamed."

Those six paragraphs from Mr. Ewing's talk are a clear-cut indication that the Federal Security Administration is going to the communities and people direct in its fight to put through a compulsory sickness insurance program.

Read Mr. Ewing's pleas again. Every sentence can be applied to the medical profession, aimed, of course, at educating the people to the dangers of compulsory sickness insurance. Every state and county medical society can take a lesson from Mr. Ewing's remarks and apply them to their own job ahead.

Mr. Ewing says that "success depends upon what the people themselves are willing to do about it." How true! That applies just as well in our fight.

Again, Mr. Ewing says that "to set such a project in motion requires responsible state and local leadership." Again, how true! The medical profession already has that leadership in state and county societies.

In his plea to get to the grass roots, Mr. Ewing urged his own workers to put their shoulders to the wheel. We must do that, too, within the states and counties of the nation so that the people everywhere will realize that any form of compulsory sickness insurance will necessitate a new payroll tax and the addition to the public payroll of thousands of administrative workers. We must push our 10-point program. Our job is, to put it in Mr. Ewing's words, "a state and local campaign of education," too. Only, we must stress the fact that the government isn't going to give the people anything for nothing because the government itself cannot produce wealth.

Urges Change of Tax Law to Favor Doctors

Self-employed professional men, such as lawyers and physicians, are discriminated against by our present federal income tax laws according to Frank G. Dickinson, Director of the AMA Bureau of Medical Economic Research.

Speaking at the Medicolegal Symposium of the Chicago Bar Association recently, Dr. Dickinson pointed out that the federal income tax laws permit self-employed individuals to use tax free funds to purchase pensions for their employes but not for themselves. Such employer contributions are subject to tax when the employe receives the pension but are not taxable to the employe during his working years when the employer is making the contribution.

Thus, many company doctors and company lawyers, who are employes, can look forward to pensions for their retired years. But the lawyer or doctor in private practice cannot use any tax free funds to finance a pension for himself or his partners.

"This feature of our tax law demands that a professional man incorporate himself in order to get the same privilege that a professional man or any other employe of a large firm can enjoy," said Dr. Dickinson. "The trouble is that most professional men cannot or will not incorporate. Many top management executives of corporations can look forward to five figure pensions when they retire in addition to the small pension provided by Social Security."

A movement, he explained, is now underway to get the federal income tax law amended to include physicians, lawyers and other professional people. It is hoped that the next Congress will take up legislation to eliminate this discrimination against self-employed professional people, including 99 per cent of the physicians who are engaged in private practice.

—AMA Secretary's Letter, November 29, 1948

MEDICAL ECONOMICS

Edited by the Committee on Medical Economics
of the
Minnesota State Medical Association
George Earl, M.D., Chairman

AMA UNANIMOUS ON PLANS TO DEFEAT SOCIALISM

Accepting the fact that some form of socialized medicine will be proposed in Congress very soon, but refusing to accept the inevitability of its passage, the American Medical Association's House of Delegates, in Interim Session at St. Louis, Missouri, voted unanimously to build up a 3½-million-dollar educational fund.

The money will be used to "guide a nationwide plan of education on the progress of American medicine, the importance of conservation of health and the advantages of the American system in securing a wide distribution of high quality medical care."

Thus begins one phase of the fight to keep socialism from diluting American democracy. Money is needed because money makes possible the dissemination of facts. These facts must be cemented into a defense to blunt the edges of the weapons being used by the propagandists, notably those on the federal security payrolls.

The American people must become acquainted with the unvarnished side of the health-for-everybody-for-free plan. Ewing and his Utopia-painters and legislators of the Wagner, Murray, Dingell stamp have been hard at work for a long time, following a familiar pattern of mass psychology: establish the need, dress up the product to fit the need, sell by repetition.

Selective service rejection rates from World War II are the most recent tool to fall into the hands of the propaganda artists. By lumping together all reasons for rejection, including illiteracy and underweight, counting successive rejections for a selectee as separate rejections, failing to figure into the percentages the number of draft age men who volunteered for service, the ism-men turned what was really a tribute to the progress of American medicine and a demonstration of its universal availability into a condemnation of the profession and the present system of medical care.

This is typical of the "message" which federal tax funds are being used to carry. The refutation, when it came, was tardy and inadequately publicized. Dr. Maurice Friedman of Washington, D. C., exposed the misuse of the statistics, which were never intended as a survey of the nation's health or of the health of any segment of the population, anyway. But too many people received the first message, not the latter one. Cases like this show that "good news is no news," the reverse of the old wheeze, is almost always true and a factor to be reckoned with. The medical profession can't expect to make headlines with such information as "The United States has good medical care"; whereas, Ewing and Falk gain columns for their cause by misquoting and falsifying various studies of sickness and health and the availability of doctors and hospitals to give the two-fold impression that:

1. The health of the nation is bad, because
2. Too many of its inhabitants cannot afford medical care.

The truth is that the health of the nation is good, better by comparison than any other nation of similar size and heterogeneity of population. That compulsory health insurance, federal medicine, or whatever alias socialized medicine uses, would make the health of the nation better is untrue and must be constantly refuted by every possible means.

What would happen is easy to visualize: in the first place, taxpayers would be staggered by the extra assessment for universal medical care; doctors would be unable to cope with the increasingly large number of malingerers and chronic complainers who would wend their way daily to the doctors' offices; hospitals would be filled with them too so that emergency cases would not receive the immediate attention that they warranted; bureaucrats on the federal payroll would multiply with unprecedented speed as the

maze of report-filing, complaints, suits, charges and counter charges grew in complexity.

From socialized medicine, it would be an escalator ride to completely socialistic government.

These are the facts the people must have. They must be repeated over and over again. Scientific medicine has assumed its natural role of responsibility to convey these facts to people of every age, income, race, creed and color. This will take money. But the price tag on socialism makes the $25-per-doctor assessment look paltry indeed. For socialism would not only drain the people's financial resources, but their heritage of freedom as well.

There is another aspect to this problem also. Every doctor, aware of the implications of socialized medicine, probably wonders at some time or other how the whole fantastic scheme gains credence anywhere. The answer may be found in the doctor's own office, when he treats his patients brusquely, fails to explain their ailments or, when he explains them, does so in scientific language which the lay person does not understand. The answer may stem from his unexplained refusal to answer night calls or to care for a man with a heart attack because he is not a heart specialist. It may come from excessive charges, fee-splitting or unethical practices of various sorts.

Certainly it remains evident that far too many lay persons are being enthralled by the glib words of the government medicine merchants and while scientific medicine has made a strategic move in planning the educational campaign it has, still it is the responsibility of the individual doctor to serve not only as a physician, but as a public relations representative for his profession.

BLUE CROSS-BLUE SHIELD PLANS NEGATED BY AMA

Blue Cross-Blue Shield proposals for (1) association and (2) formation of a national insurance company were rejected by the American Medical Association's House of Delegates after thorough investigation and study.

The problems which brought forth these two suggestions, however, were recognized by the House and a substitute plan of action was agreed upon. Formation of a national enrollment agency and further development of co-ordination and reciprocity among the local plans was voted. It was generally felt that this system would facilitate the work of these two organizations and would dispatch the problems which have arisen, among them the difficulty of enrolling employes of national corporations, whose managements seek uniform contracts.

Rumors growing out of the discussions in the House indicated that AMA, in failing to adopt the ideas put forward by Blue Cross and Blue Shield leaders was refuting the entire Blue Cross-Blue Shield program. Evidence that this is not true is the action taken by the House in reaffirming the authority of the American Medical Association's Council on Medical Service to promote the voluntary prepayment medical care plan movement in America.

HARNESS ADVOCATES MORE POLITICAL ACTION BY DOCTORS

Forest A. Harness, chairman of the House Committee on Publicity and Propaganda, participated in a symposium on medical legislation during the AMA Interim Session and had this to say about doctor participation in politics:

"At the academic level, I know medical people have made tremendous efforts, both to resist the encroachments upon free institutions, and to meet the growing threats to your own profession. . . . But what effective effort has the profession ever made at the practical level? How much time, effort and substance have you ever devoted to everyday, down-to-earth, shirt-sleeve politics? Can you recall a single instance when the profession, or significant numbers within it, vigorously endorsed and supported a political party, or individual candidates? . . . Try to adjust your thinking to the inescapable fact that trends are not started or stopped in council chambers, but on street corners. Efforts expended at academic levels, and possibly directed to Congress at a given time, may speed or retard a trend. But if the efforts are to be permanently effective, they must reach the masses who write the decisions each two years in national elections.

"I think it is a great pity that people like you, who are best fitted by ability and training to provide leadership, have remained aloof. I think it is particularly regrettable that our medical people, who enjoy positions of confidence and trust hardly equalled by any other group in the American community, have so far neglected to prescribe for the body politic as part of their daily ministrations."

GRASS ROOTS CONCEPT ACCLAIMED AT SESSION

The Grass Roots conference, held November 30 as part of the AMA Interim Session, to "develop a working partnership between the American Medical association and every physician," was devoted mainly to the consideration of two problems: the relation of the doctor to national

preparedness and the roles of doctor and public in the socialized medicine system.

Military, civilian and medical viewpoints were expressed and it was the consensus of opinion that the armed forces are relying on the "responsibility of the doctor" to make a special draft of physicians unnecessary. The philosophy of service which is inculcated in every physician has been well demonstrated in war as well as in peace and possibility of induction of physicians by way of selective service seems remote.

In the second half of the evening's discussion, Dr. Maurice Friedman of Washington, D. C., amplified his study of the selective service rejection figures, noting dryly, "Mr. Ewing has made so many statements that, statistically, it would be impossible if some of them were not true."

Giving examples of the Ewing formula, Friedman pointed out that any set of figures, real or imagined, suits Mr. Ewing's purposes. It is an accepted fact that health studies by counties are impractical—sparsely populated counties with access to hospitals in adjacent counties could not support and have no real need for hospitals within the actual county boundaries, yet Ewing uses the fact that a number of counties in each state do not have hospitals as a selling point for compulsory health insurance.

Ewing asserts again and again that the mortality and morbidity rate in the United States could be slashed to almost nothing if only the people, all the people, had money enough to buy medical care or, rather, that this medical care was furnished them by the government. But Friedman has ably demonstrated by comparison that the mortality rate has no direct connection with the availability of medical care.

Ewing reasoning follows this line, Friedman declared: In the U. S. among white births, the mortality rate for males is 41.2 per 1000 live births. For females, it is 32.4. Therefore, male babies cannot afford proper care and are being discriminated against by the selfish, greedy medical profession!

AMA PASSES RESOLUTION ON REBATE QUESTION

Guided by the recommendation of the reference committee on miscellaneous business, the House of Delegates at St. Louis adopted the following resolution concerning rebates:

"Your committee has given prolonged consideration to this matter and approves that portion of the report which states that the House of Delegates reiterates condemnation of the practice of any member accepting rebates, and that the House of Delegates condemns also the practice of giving rebates by a member. It urges that the different state societies in those states in which such practices are not now illegal give serious consideration to the introduction of legislation making the practice of rebating to or by physicians illegal.

"Your committee recommends further to the component county societies that on the receipt of a bona fide complaint the disciplinary committee of that society should hold a hearing and endeavor to make an investigation of the doctor's records and accounts at society expense, and that a record of such hearings and examination should be kept for the information of the state society and, if necessary, for the Judicial Council of the American Medical Association."

WORLD WAR THREE BEGINNING IDENTIFIED

If there is a third World War, the day of the attack already has an identifying label, according to Brig. Gen. George E. Armstrong, deputy surgeon, General Department of the Army, Office of the Surgeon General. The day will be known as "C-Day"—Catastrophe Day.

Plans are being made to decentralize the military command and to make local units, including those assigned to civilian medical care, autonomous.

SOUTH CAROLINA DOCTOR GETS GP AWARD

Dr. W. L. (Buck) Pressly, Due West, South Carolina, general practitioner for thirty-two years, received the AMA General Practitioner award at the St. Louis meeting. Dr. Pressly, sixty-one, is considered an authority on rural health and sanitation in his state.

"In entering the medical field, I resolved and have sought rigidly to adhere to one idea—that my life would be one of service to mankind," said Dr. Pressly in accepting the award.

Nominations for the award came from twenty-three states. "All twenty-three nominees were distinguished general practitioners, noted in their respective states for their long and devoted service," said Dr. E. L. Henderson, chairman of the Board of Trustees.

Medical services are not commodities that can be bought in standardized packages wherever and whenever one has the money to pay for them.—Medicine in the Changing Order, Rep. New York Academy Med. Comm., The Commonwealth Fund, 1947.

Minnesota Academy of Medicine

Meeting of October 13, 1948

The regular monthly meeting of the Minnesota Academy of Medicine was held at the Town and Country Club on Wednesday evening, October 13, 1948. Dinner was served at 7 o'clock and the meeting was called to order at 8:15 by the President, Dr. T. A. Peppard.

There were forty-eight members and five guests present.

Minutes of the May meeting were read and approved.

The scientific meeting following.

Dr. Vernon L. Hart, of Minneapolis, gave an interesting talk on a recent trip to Germany with three other medical men from the United States who went to Europe at the request of the Surgeon General to provide some setup for the young physicians from this country who are now located in hospitals in Germany.

Dr. Wesley Spink, of the University of Minnesota Medical School, read his Inaugural Thesis on the use of aureomycin, an abstract of which follows.

INVESTIGATIONS WITH THE ANTIBIOTIC AUREOMYCIN

(Abstract)

WESLEY W. SPINK, M.D.
Minneapolis, Minnesota

Aureomycin is an antibiotic isolated by Duggar of the Lederle Laboratories from *Streptomyces aureofaciens*. This antibacterial agent is a yellow crystalline material which is stable in this form, but its activity is rapidly lost when placed in solution. Of particular clinical interest, is the fact that the material is absorbed from the gastrointestinal tract following oral administration. Initial clinical investigations in human beings indicate that aureomycin induces only mild toxic reactions such as nausea, vomiting and soft stools.

Aureomycin has a broad spectrum of antimicrobic activity being effective *in vitro* against Gram-positive organisms such as streptococci, staphylococci and pneumococcic; against the Gram-negative bacteria, *E. coli, Aerobacter aerogenes, Salmonella, Klebsiella pneumoniae, Neisseria, E. typhosa, Brucella* and *Hemophilus influenzae*. Most strains of *Proteus* and *Pseudomonas* appear to be resistant to aureomycin. The drug has proved to be quite active against the rickettsiae, which are the cause of the human diseases: murine and epidemic typhus, Rocky Mountain spotted fever, scrub typhus, Q fever, and rickettsialpox. And lastly, aureomycin inhibits the propagation of certain of the larger viruses including lymphogranuloma venereum, granuloma inguinale and psittacosis.

Up to the present time, aureomycin has been administered orally in capsules in doses of 0.5 to 1.5 gram every six hours. A salt of aureomycin may be given intramuscularly in aqueous solutions in total daily doses up to 200 mgs. This amount is divided into three or four doses. Solutions of aureomycin may be used topically, especially for ocular infections.

The actual status of aureomycin in human infection must await further studies. The following preliminary statements may have to be modified in the future. In the treatment of gonorrhea, a single oral dose of aureomycin is followed by a lower percentage of cures than is obtained with a single intramuscular injection of 300,000 units of penicillin. The response of patients with pneumococcic pneumonia to aureomycin has been encouraging. Thus far, the results in the treatment of uncomplicated cases of typhoid fever have not been remarkable. This also applies to disease caused by Salmonella. Urinary tract infections due to Gram negative organisms have been eradicated with aureomycin with the exception of disease due to *Proteus* and *Pseudomonas*. It would appear that aureomycin is the drug of choice for the therapy of lymphogranuloma venerum, and possibly, granuloma venerum. The antibiotic has yielded encouraging results in the treatment of Rocky Mountain spotted fever and Q fever. According to Braley and Sanders the local application of solutions of aureomycin to the eyes has been followed by good results in the treatment of staphylococcic blepharitis with conjunctivitis and keratitis; pneumococcic and influenza conjunctivitis and kera- infections due to the Morax-Axenfeld diplobacillus. Encouraging results have been obtained in the therapy of viral diseases of the eye including dendritic keratitis and inclusion conjuctivitis. The drug merits trial in trachoma.

At the University of Minnesota Hospitals, investigations have been under way during the past six months with Doctors Yow, Magoffin and Braude relative to the value of aureomycin in the treatment of brucellosis. Previous to these studies it had been established that the most satisfactory specific therapy was a combination of streptomycin and sulfadiazine. It has been of interest to observe that in comparing streptomycin with aureomycin for antibrucella activitiy, *in vitro* studies showed the former to be superior to aureomycin. Furthermore, in experimentally infected chick embryos, aureomycin did not afford as good protection as streptomycin. It is too early to draw any final conclusions on the value of aureomycin in the treatment of human brucellosis. A cooperative study on therapy in brucellosis is being carried out with Dr. M. Ruiz Castaneda in Mexico City. To date, it would seem that the oral administration of aureomycin is an exceedingly effective drug for this disease.

In summary, aureomycin is an antibiotic having a wide antimicrobic spectrum. It may be administered orally, and it has induced only the benign toxic reactions. For these reasons, intensive studies in human infections are warranted.

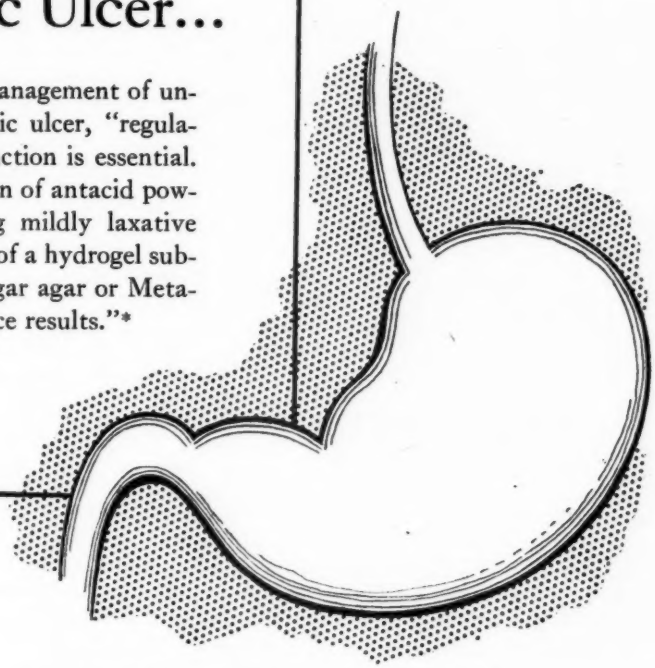
Discussion

Dr. R. T. LaVake, Minneapolis: I would like to ask Dr. Spink if blood transfusion has been used as an

(Continued on Page 92)

Bowel Regulation in Peptic Ulcer...

In the medical management of uncomplicated peptic ulcer, "regulation of bowel function is essential. . . . A combination of antacid powders . . . having mildly laxative effects or the use of a hydrogel substance, such as agar agar or Metamucil, will produce results."*



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SEARLE RESEARCH IN THE SERVICE OF MEDICINE

*Gerendasy, J.: Modern Treatment of Peptic Ulcer, J. M. Soc. New Jersey *43*:84 (March) 1946.

MINNESOTA ACADEMY OF MEDICINE

(Continued from Page 90)

adjuvant in these cases. When we first began the use of the sulfonamides in infections, in several cases when no beneficial results were obtained, multiple transfusions rapidly changed the whole picture for the better.

DR. L. LOGAN LEVEN, Saint Paul: I am greatly impressed with the results of aureomycin as presented by Dr. Spink tonight. I had the opportunity to see its effect on a badly burned patient on my service at the University Hospital. This child had extensive, badly infeeted burns. She had developed a pyemia and had osteomyelitis of the mandible as well. She was given the usual therapy for this type of case. She was sensitive to sulfonamides and to penicillin. About the time that all therapy seemed hopeless, aureomycin was used, and a sudden improvement was noted. The temperature returned to normal, and the patient was promptly gotten into condition for skin grafting. The result in this case was most striking.

DR. F. W. LYNCH, Saint Paul: Dr. Spink listed a variety of organisms sensitive to this drug. Are we to understand that most of the other common organisms are not sensitive, or have they not yet been tried?

DR. SPINK, in closing: An answer to Dr. LaVake's question about the use of transfusions with antibiotics, there is no specific advantage in giving either whole blood or plasma with any of the antibiotics. Transfusions should be employed when there are clear-cut indications for their use such as anemia, hypoprotinemia and shock. In fact, I am exceedingly apprehensive about the indiscriminate use of blood transfusion, because of the potential danger of severe and fatal reactions. Furthermore, infusions with pooled plasma are associated with the danger of inducing homologous serum hepatitis. It is of historical interest that immune serum appeared to be an effective agent for the treatment of infections due to Group A hemolytic streptococci, and if the sulfonamides and antibiotics had not been introduced at the time, immune transfusions would have been widely used in the treatment of streptococcic disease, especially puerperal sepsis.

In answer to Dr. Lynch's question, undoubtedly other species of micro-organisms are sensitive to aureomycin. I should like to emphasize that our primary interest in this antibiotic has been with relation to brucellosis. Such observations that have been made in our laboratory with other diseases and bacteria are an outgrowth of this major interest. Although tremendous advances have been made in the management and control of infectious diseases there is still room for improvement. There is probably no more satisfaction in the whole field of medicine than that which is obtained in treating successfully, infectious diseases which only a few years ago were considered highly fatal diseases. Consider the previous mortality rate of 80 per cent for staphylococcic septicemia, compared to a present rate of less than 20 per cent; of 100 per cent for pneumococcic meningitis, compared to a present rate of at least less than 50 per cent; of subacute bacterial endocarditis with its previous death rate of around 100 per cent, and now a recovery rate of over 75 per cent.

However, as I have stated previously, there is still room for improvement and that is why a continued interest will be manifested in antibiotic therapy.

The meeting adjourned.

A. E. CARDLE, M.D., *Secretary*

In Memoriam

PIERRE C. PILON

Dr. Pierre C. Pilon of Paynesville, Minnesota, died on December 16, 1948. He was eighty-four years of age.

Dr. Pilon obtained his medical degree from the University of Victoria, May 12, 1886, and began practice at Cold Spring. Later he moved to Richmond, Minnesota. In 1897 he moved to Paynesville and for a time was a member of the Stearns-Benton County Medical Society.

As a major in World War I, he was superintendent of an auxiliary base hospital at Bordeaux, France.

In 1936 Dr. Pilon was honored at a testimonial dinner given him by one hundred and fifty friends, commemorating his fifty years of practice. The same year he and Mrs. Pilon returned to France to visit friends and relatives.

Dr. Pilon had served as mayor of Paynesville, coroner of Stearns County and as a member of the Minnesota State Board of Medical Examiners.

He is survived by his widow and a brother.

THE CANCER PROBLEM

(Continued from Page 69)

due solely to metastatic carcinoma and was in no way attributable to the operation. There were no other hospital deaths in this series.

Summary

The problem of cancer diagnosis and treatment has been discussed from the standpoint of the practicing physician in a small community and the role of the practicing physician in the reduction of cancer mortality has been stressed.

A small series of cancer cases from the author's practice has been presented as a basis for this discussion. A composite analysis of similar series of cases from many other smaller communities throughout the state should be made in order to evaluate the average practicing physician's abilities and shortcomings in the diagnosis and treatment of cancer.

Reference

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(Continued from Page 64)

adequate facilities and personnel are available. Merely taking the smears and submitting them to the laboratory, where no adequate provisions are available, would not be just either to the patient or the technique.

It is clearly the responsibility of the pathologist to accept the Papanicolaou method as an aid in cancer diagnosis, and to guide the medical profession in its judicious use, by impressing upon its members the fact that the method, while it has proven its value in cancer diagnosis, is actually often more difficult, is time-consuming, and lacks definitiveness that the biopsy more easily affords. All this means special training for practicing pathologists.

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Reports and Announcements

NATIONAL CONFERENCE ON MEDICAL SERVICE

Palmer House, Chicago, Illinois, February 6, 1949

Morning Session—9:00 A.M.

Registration: Foyer of Red Lacquer Room Fourth Floor Palmer House.

Appointment of Committees.

Address of the President—E. F. SLADEK, M.D., Traverse City, Michigan.

Legalized Medical Research.

Medical Problems.—CHRIS J. D. ZARAFONETIS, M.D., University of Michigan.

Legal Problems.—GEORGE WAKERLIN, M.D., University of Illinois.

Title to be announced.—JAMES R. MCVAY, M.D., Kansas City, Missouri; Chairman, Council on Medical Service, AMA.

Progress of the World Health Organization.—FRANK CALDERONE, M.D., Director, American Office, World Health Organization.

Progress of the World Medical Association.—CREIGHTON BARKER, M.D., Executive Secretary, Connecticut State Medical Association.

Medical Program of the United Mine Workers of America Welfare and Retirement Fund.—WARREN F. DRAPER, M.D., Executive Medical Director.

Subscription Luncheon—12:15 P.M.

Afternoon Session—1:00 P.M.

The AMA puts on its Fighting Togs.—(Speaker to be announced.)

What's Happening in Washington This Week.—JAMES D. BOYLE, United Public Health League.

Discussion—To be opened by JOSEPH S. LAWRENCE, M.D. Director of the Washington Office, AMA.

Panel Discussion on Postgraduate Education of the Doctor.

(a) Responsibility of Medical Schools in Continued Postgraduate Education of the Doctor.—GEORGE N. AAGAARD, Director of Postgraduate Medical Education Program, University of Minnesota.

(b) Function of the State Medical Society in Postgraduate Work.—C. W. SMITH, M.D., Harrisburg, Pennsylvania.

(c) Survey Findings on Specialization in Colorado.—HAROLD I. GOLDMAN, M.D., Denver, Colorado.

Can Corporations Such as Hospitals Legally Engage in the Practice of Medicine?—WILBUR BAILEY, M.D., Los Angeles, California.

Report of Committees and Election of Officers.

Physicians are urged to attend and take part in discussions.

POSTGRADUATE COURSE IN DISEASES OF THE CHEST

The Council on Postgraduate Medical Education of the American College of Chest Physicians and the Laennec Society of Philadelphia announce a Postgraduate Course in Diseases of the Chest to be held at the Warwick Hotel, Philadelphia, Pennsylvania, February 28 through March 5, 1949. This course will emphasize the recent developments in all aspects of diagnosis and treatment of diseases of the chest.

The course is open to all physicians, although the number of registrants will be limited. Applications will be accepted in the order in which they are received. The tuition fee is $50.00.

Application may be made through the Executive Offices of the American College of Chest Physicians, 500 North Dearborn Street, Chicago 10, Illinois.

RESEARCH FELLOWSHIPS

Announcement of the availability of ten research fellowships to be awarded for one year in the fields of medicine, dentistry, and pharmacy has been announced by the University of Illinois Graduate College in Chicago.

The fellowships carry stipends of $1,800 per year for medical and dental graduates and $1,200 for pharmacy graduates, with exemption from tuition fees for all appointees. Registration in the Graduate College for credit toward M.S. or Ph.D. degrees is required.

Candidates should indicate the field of research in which they are interested and submit transcripts of their scholastic credits, together with the names of three former science teachers as references. Appointments will be announced March 1, 1949, or shortly thereafter. The fellowship year begins on July 1, 1949, or September 1, 1949.

Formal application blanks may be secured from the Secretary of the Graduate Committee, 1853 W. Polk Street, Chicago 12, Illinois.

INFANTILE PARALYSIS FELLOWSHIPS

The National Foundation for Infantile Paralysis announces that a limited number of research fellowships are available in virology, orthopedic surgery, pediatrics, epidemiology, neurology, physical medicine and public health. Requirements for the appointments, which are sponsored by the Foundation, include medical training and two years of training at the residency level in the particular field.

Details may be obtained from the National Foundation for Infantile Paralysis, 120 Broadway, New York 5, New York.

(Continued on Page 96)

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Assets—$102,000,411.74
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LET'S TALK ABOUT HEALTH

The following broadcasts will be given by Dr. D. A. Dukelow, Director of the Health and Medical Care Division of the Community Chest and Council of Hennepin County, in January and February.

1949

Jan. 3. Public Health Legislation.
Jan. 10. Winter Health Hazards.
Jan. 17. Our New Blood Bank.
Jan. 24. Allergy.
Jan. 31. Live longer and Like It.
Feb. 7. Saving Children's Teeth.
Feb. 14. Have a Heart.
Feb. 21. What Is Mental Illness?
Feb. 28. Report on Public Health Bills in Congress.

COURSES IN FOOD HANDLING

To help in protecting the public against food-borne diseases, courses for food handlers and other restaurant employes will be given at several centers by the Minnesota Department of Health during the coming year. These courses are given under the direction of the Division of Hotel and Resort Inspection, and are open free of charge to persons concerned in the handling of foods and drinks in hotels, restaurants, bars, schools, hospitals, and institutions.

The courses, each two hours in length, emphasize the points to observe in preventing outbreaks of food poisoning and the importance of personal hygiene and safe food handling and cleaning techniques.

The Division of Hotel and Resort Inspection was created by the State Legislature forty-five years ago, with the primary purpose of regulating the operation of inns and lodging houses. Since then this division has expanded its activities to include sanitary supervision of cabin camps, tourist homes, taverns, resorts, hotels, restaurants, and soda fountains.

At present the personnel of the division consists of a director, Mr. Harold S. Adams, also nine inspectors and five clerical workers. The division is responsible by law for licensing all the establishments named above. The law also makes it mandatory that an inspection be made at least once a year of all places under licensure. The inspectors check such aspects of food sanitation as refrigeration of perishable foods, proper food handling methods, safe storage and display of foods, dishwashing operations, locker and rest room sanitation, insect and rodent control. They also consider aspects of fire prevention and protection, including proper means of egress, condition of fire extinguishers and fire hose, removal of combustible materials, safe wiring and proper designation of exits by lights and signs.

Since there are more than 18,000 licensed establishments in Minnesota, it is evident that inspections cannot be made as frequently as would be desirable. However, the division can point with pride to much accomplishment in promoting safety and sanitation in hotels and other establishments throughout the state.

TWO CONTINUATION COURSES

The University of Minnesota announces a continuation course in cardiovascular diseases to be given at the Center for Continuation Study on February 14 and 15, 1949. The course is intended for general physicians and is sponsored by the Minnesota Heart Association.

The University of Minnesota announces a continuation course in pediatrics to be given at the Center for Continuation Study on February 7, 8, and 9, 1949. The course is intended for general physicians and is sponsored by the Minnesota Department of Health.

MINNESOTA SOCIETY FOR THE PREVENTION OF BLINDNESS

The annual meeting of the Minnesota Society for the Prevention of Blindness and Conservation of Vision was held at the Coffman Memorial Union at the University on December 14, 1948.

The meeting was presided over by Mr. Amos S. Deinard, president, who told of the purpose of the society, the prevention of eye accidents and the early treatment of eye diseases to conserve vision. The society has been sponsoring a state bill to prevent the sale of air rifles which are the cause of so many accidents to the eyes and which Mr. Deinard stated serve no useful purpose.

Miss Mary Davis, daughter of the late Dr. William Davis, was elected president for 1949.

GOODHUE COUNTY SOCIETY

The annual meeting of the Goodhue County Medical Society was held in Red Wing early in December, with election of officers highlighting the program.

Dr. G. W. Bagby, Cannon Falls, was elected president of the organization, succeeding Dr. M. G. Flom of Zumbrota. Other officers elected were Dr. L. E. Steffens, vice president, and Dr. J. F. Brusegard, secretary-treasurer, both of Red Wing. For the second successive year the society named Dr. M. R. Williams of Cannon Falls the outstanding general practitioner in the county.

RAMSEY COUNTY SOCIETY

At a meeting of the Ramsey County Medical Society in Saint Paul on November 29, Dr. Warner Ogden was named president-elect, to take office in 1950. Dr. J. R. Aurelius was installed at the meeting as president for 1949. Other officers elected were Dr. William A. Kennedy, vice president, and Dr. Laurence Hilger, secretary-treasurer.

SIOUX VALLEY MEDICAL ASSOCIATION

The annual meeting of the Sioux Valley Medical Association will be held at the Hotel Cataract, Sioux Falls, South Dakota, on January 25, 26 and 27. Plans for the meeting call for emphasis on subjects of primary interest to the general practitioner. All physicians are welcome to attend.

WASHINGTON COUNTY

The annual meeting of the Washington County Medical Society was held November 14, 1948. Officers elected for 1949 were: Dr. W. R. Humphrey, president; Dr. C. H. Sherman, first vice president; Dr. G. M. Ruggles, second vice president; Dr. E. S. Boleyn, secretary-treasurer (re-elected).

Members of the County Welfare Board met with the society and some disputed fees for attending hospitalized indigents were adjusted satisfactorily.

AMNIOTIC FLUID AND MECONIUM EMBOLISM

(Continued from Page 72)

epithelial squamae in the capillaries, arterioles and small arteries of less than 1.0 mm. in size in the lungs.

The autopsy report of the fetus in Case 1 is included in the paper because the death was attributed to the aspiration of the meconium-stained amniotic fluid. It is generally agreed that under conditions of severe asphyxia, violent fetal respiratory efforts occur, and that there is often an associated expulsion of meconium into the amniotic fluid. This apparently occurred in Case 1 where the asphxyia probably occurred as a result of the placenta previa. It may be further assumed that this asphyxia ultimately resulted in the death of both mother and child.

Summary

1. Two cases of maternal pulmonary embolism by meconium and amniotic fluid are reported.

2. In labor the fluid and meconium probably are forced into the uterine sinuses by the strongly contracting organ. The fluid can also enter the maternal circulation during cesarean section.

3. The particulate matter of the amniotic fluid, i.e., the meconium, vernix caseosa, lanugo hairs, and epithelial squamae are responsible for the embolic plugging of the pulmonary circulation.

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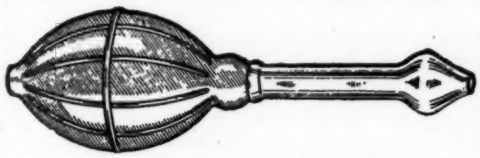

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Woman's Auxiliary

HYGEIA IN EVERY DOCTOR'S OFFICE WOMAN'S AUXILIARY GOAL

Mrs. C. L. Sheedy

In the past few years *Hygeia* has published more than 50,000 words on federalized medicine. What better way can we inform the public on such issues than by buying *Hygeia* for ourselves and making it known to others?

No consistent reader of *Hygeia* could be duped by quackery, either. *Hygeia* educates the patient to dispel unfounded fears by giving reliable, authentic health information in clear, concise and simple terms. *Hygeia* has published many articles stressing doctor-patient cooperation and education. These recent titles are indicative of *Hygeia's* role in the drama of health and sickness: "Doctors Guard Your Health," "Can Chiropractic Cure?" and "You Can't Doctor Yourself."

Surely the most logical place for the magazine is the physician's reception room. As early as 1920, the need for a health magazine was recognized by many physicians and two years later the American Medical Association's House of Delegates authorized its publication. In April of this year, *Hygeia* completed its twenty-fifth year of service to the public.

Designed for a lay public, the magazine contains interesting, informative material for those of the profession. Special rates make it possible for physicians and dentists and their families to receive the magazine at half its cost to the public—$1.50 per year, $2.50 for two years and $3.25 for three years. The regular subscription rate, however, compares favorably with other quality magazines of general circulation.

Traditionally, the Woman's Auxiliary is charged with the responsibility of promoting *Hygeia;* through Parent-Teacher groups, boards of education and similar organizations interested in health education. Unfortunately, the bulk of this work has been carried on principally by a small number of Auxiliaries. We have over 600 organized county units, but 90 per cent of the orders come from 25 per cent of the county auxiliaries; another 25 per cent showed interest, but more than 50 per cent took no part in the promotion of the magazine.

Minnesota has twenty-eight counties. Eight counties did not report a single *Hygeia* subscription last year. Let's redouble our efforts in behalf of America's greatest health publication. Let's make this Minnesota's biggest *Hygeia* subscription year.

AUXILIARY INFLUENCE MUST BE AN INFORMED INFLUENCE

Mrs. William Von der Weyer

At the beginning of the year, with all the enthusiasm of a new recruit, your Bulletin chairman determined to make every one of the 1,672 members in the State Auxiliary a subscriber to the *Bulletin of the Woman's Auxiliary to the AMA.* Inspired by the zeal of our president, Margaret Wahlquist, and with the desire to make hers a successful year, subscription blanks were sent to all County Auxiliary presidents, urging them to get new and renewed subscriptions. So far, only a few of these have been returned, but it is expected that many more will be coming in during the post holiday months.

If we, as doctors' wives, are to have any influence in health matters in our state, we must have *The Bulletin* as well as other health literature to help us inform our neighbors and friends as to medical legislation, new therapeutic practices, new medicines, new food products, the nursing situation, and many other subjects which are aids to human welfare.

Did you know that the number of Auxiliary members in the United States is almost 50,000? Think of the opportunity so many of us have of bringing our informative messages to 3.5 million members of other women's organizations throughout the nation! So *please* subscribe to *The Bulletin.* You'll be doing yourself a great good—just send your dollar to: Mrs. Wm. Von der Weyer, 601 Montcalm Place, St. Paul, Minnesota.

FALL BOARD MEETING

Mrs. W. A. Merritt

Three women were given regular appointments and three, special appointments, at the fall board meeting of the Woman's Auxiliary to the Minnesota State Medical Association, held September 25, in the Italian Room of the Radisson Hotel, Minneapolis, following the Auxiliary Workshop. The assignments are as follows:

Mrs. S. S. Hesselgrave, Parliamentarian; Mrs. E. V. Goltz, Advisory Committee; Mrs. Martin Nordland, Advisory Committee; Mrs. Walter Haven, Workshop Committee; Mrs. L. S. Arling, Newsletter; Mrs. Harold G. Benjamin, Roster.

Elected to the Nominating Committee were: Mrs. E. V. Goltz, Mrs. L. P. Howell, Mrs. A. Christiansen, Mrs. Henry W. Quist, Mrs. Hobart Johnson; alternates, Mrs. John Butler and Mrs. J. L. Bowen.

Attended by thirty-six officers and county presidents, the meeting went on record as endorsing the cancer essay and poster contests throughout the state, giving to these projects the sum allocated in the Auxiliary's budget for cancer and co-sponsoring the essay and poster contests.

Fifty dollars was earmarked for prizes for the state tuberculosis essay contests.

County presidents were reminded by Mrs. Harold W. Wahlquist, state president, to collect 25 cents per capita for the Dr. O'Brien Memorial Fund, in line with the Auxiliary vote last spring.

Mrs. S. S. Hesselgrave, parliamentarian, explained the increase in National Auxiliary dues to one dollar per member, the fund to be used for periodicals sponsored by the national Auxiliary when revenue justifies their publication.

Silent tribute was paid by the group to two deceased members of the State Auxiliary board: Mrs. James S. Reynolds and Mrs. James Blake, Sr.

Mrs. H. W. Wahlquist and Mrs. Luther H. Kice, national president spoke briefly, and reports were given by standing committee chairmen and presidents of county auxiliaries from: Blue Earth, Hennepin, Mower, Ramsey, Renville, Southwestern, Stearns-Benton, and Upper Mississippi.

NEWS NOTES FROM WASHINGTON COUNTY
Mrs. R. E. Carlson

Mrs. Ray Johnson, wife of Dr. Johnson of the state prison staff, died late this summer.

Mrs. E. Sydney Boleyn has been in the hospital since October 4 when she was struck by an automobile.

Mrs. Carrie Landeen has been confined to her bed for a month.

ST. LOUIS COUNTY NETS $306 FOR PHILANTHROPY
Mrs. P. S. Rudi

The annual rummage sale held by the St. Louis County Auxiliary boosted the group's philanthropic fund by $306. Budget expenses will be met also by the proceeds of the project.

Auxiliary members were dinner guests of the St. Louis County Medical Society, December 8. Dr. Vernon Smith of St. Paul was guest speaker and showed his wild game and skiing pictures. Dr. P. S. Rudie, retiring president, paid tribute to the Auxiliary and to the pioneer members of the Medical Society responsible for its growth and progress.

STEARNS-BENTON GROUP AIDS CANCER CLINIC
Mrs. R. C. Smith

Most recent project of the Stearns-Benton Auxiliary was assisting with the Cancer Clinic, held in St. Cloud December 4. Concurrently, the members are laying plans for: supplementing the loan fund for the nurses at the St. Cloud hospital, and arranging the program for the St. Cloud Health Day and many other activities.

WINONA WOMEN SEW FOR HOSPITAL THERE
Mrs. P. A. Mattison

Sewing for the Winona General Hospital is keeping the Auxiliary busy at its twice-monthly meetings. In addition to the sewing sessions, the Auxiliary held two other meetings recently, one devoted to Workshop reports and the other to discussions of medical legislations, led by Mrs. Elmer Rusten.

POSSIBILITIES UNLIMITED FOR HEALTH DAYS
Mrs. Hobart Johnson

Southwestern Auxiliary, comprising six counties, pioneered this year in the field of community Health Days, held in co-operation with the local medical society and the Minnesota Department of Health. The success

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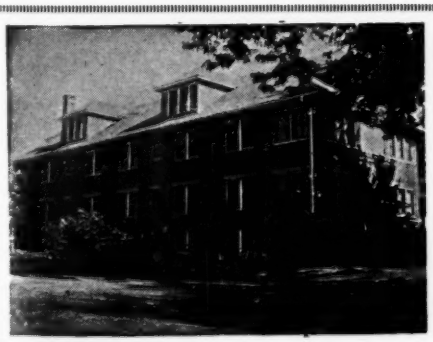

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of this meeting led to the decision of the Minnesota State Medical Association and the Auxiliary to sponsor such Health Days in various parts of the state.

As public relations chairman, it has been my pleasure to attend subsequent Health Days and to note the part we play as an organization. The success of the meetings is somewhat in proportion to the amount of work that the wives of physicians have been willing to do, both in planning and publicizing.

In evaluating these Health Days as a continued project in our state and as a recommendation for other states, it is evident that the good results far outweigh the difficulties encountered. Speakers of high calibre can be approached, because they are assured of a representative audience. Many leaders will be present who will not only profit by the discussions but by personal contacts they make at such a time. Many new friendships are formed among the wives of physicians as they meet and work together for the good of the community.

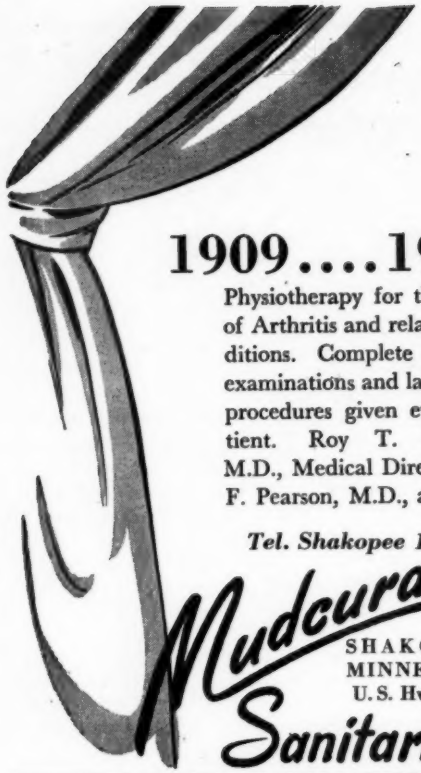
Factors to be considered are:

Preliminary Plans.—Choice of date (fear of polio is prevalent in the early fall), counties to be included, subjects to be presented and by whom, publicity by the press and radio, letter and in person, with special emphasis that the general public is invited, chairman and committees, with special stress on co-operation of Auxiliary members.

Health Day Details.—Registration (desk must be located so that noise does not interfere with sessions), hospitality, handling of the crowd, provision for good loudspeaker system, timing of panels and speakers to sustain audience interest.

The November issue of MINNESOTA MEDICINE carried the Minnesota Department of Health endorsement of Health Days and the medical societies and auxiliaries owe the department personnel a debt of deep gratitude. It was also gratifying to see how many doctors attended the meetings and took part in the programs.

Auxiliary members can be proud of the accomplishments of this year and yet realize that the possibilities for good in this line of endeavor are unlimited. In the beginning, those with vision must work hard to lead the way, but year by year the links in our chain will grow stronger and because of our efforts the citizens of Minnesota will learn that the medical profession stands united to help show them the way to happier and healthier living.



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Of General Interest

Dr. Edward Q. Ertel, Ellendale, was in Chicago during the middle of November attending a surgical convention.

* * *

Dr. Leslie Caplan has opened offices at 340 LaSalle Building, Minneapolis, for the practice of psychiatry.

* * *

During the middle of November Dr. Douglas L. Jacobs of Willmar attended a medical convention in Cleveland, Ohio.

* * *

Dr. Charles W. Rogers of the Winona Clinic attended a continuation course in pediatrics at the University of Minnesota early in December.

* * *

Dr. Norman Johnson, Minneapolis, announces the reopening of an office at 65 South Tenth Street for the practice of internal medicine.

* * *

Dr. and Mrs. W. F. Mercil, Crookston, were in Minneapolis during the middle of November while Dr. Mercil attended a medical meeting.

* * *

A semi-annual chest clinic was held in Owatonna on November 30 by Dr. Karl H. Pfuetze, director of the Mineral Springs Sanatorium at Cannon Falls.

* * *

Among those attending a meeting of the Scott-Carver County Medical Society in New Prague on November 24 was Dr. H. M. Juergens of Belle Plaine.

* * *

Among Minnesota men attending the interim session of the American Medical Association in St. Louis, Missouri, early in December was Dr. J. C. Jacobs of Willmar.

* * *

One of the speakers at the annual meeting of the Minnesota Association of Coroners in St. Cloud December 10 and 11 was Dr. James Cardy of the University of Minnesota pathology department.

* * *

"The Concept of a Healing Force in Medical Psychology" was discussed by Dr. Maurice N. Walsh, Rochester, at a meeting of the Minnesota Society of Neurology and Psychiatry in Saint Paul on November 9.

* * *

Principal speaker at a meeting of the Rotary Club in Hibbing on November 11, Dr. T. A. Estrem described changes in the practice of medicine in the past thirty years.

* * *

In November, Dr. N. N. Ninneman purchased a home in Waconia only two doors from his office quarters. It was announced that he planned to use the building both as office and as residence.

* * *

Dr. H. P. Rome, Rochester, has been appointed chairman of the training committee in psychiatry of the United States Public Health Advisory Board. The committee allots funds for the undergraduate and graduate training of psychiatrists throughout the United States.

* * *

Dr. Ralph E. Creighton, Minneapolis, was appointed on November 22 to the board of directors of the Minneapolis Community Chest and Council. Dr. Creighton is a past president of the Hennepin County Medical Society.

* * *

Dr. Waltman Walters, Rochester, was elected president-elect for 1949-1950 of the Interstate Postgraduate Medical Association of North America at a meeting of the group in Cleveland, Ohio, November 9 through 11.

* * *

The disadvantages of socialization of medicine were discussed by Dr. Martin O. Wallace, Duluth, when he spoke at a meeting of the Duluth Kiwanis Club on November 10.

* * *

Dr. Clyde A. Undine of Minneapolis attended the Midwest regional meeting of the American College of Physicians held in Detroit, Michigan, November 20, 1948.

* * *

Among Minnesota physicians attending a two-day continuation course in obstetrics and gynecology at the University of Minnesota November 15 and 16 was Dr. M. I. Howard of Mankato.

* * *

During the middle of November, Dr. and Mrs. L. W. Johnsrud of Hibbing were week end guests of former Hibbing residents, Dr. and Mrs. Randall Derifield, now living in Des Moines, Iowa.

* * *

Among those in attendance at a meeting of the Minnesota Surgical Society in Saint Paul on November 5 was Dr. Albert Fritsche of New Ulm. The society meeting was held at Ancker Hospital.

* * *

"Psychiatric Problems of Adolescence" was the topic discussed by Dr. Edward Anderson, Minneapolis, when he spoke at a meeting of the Blue Earth Valley Medical Society in Winnebago on October 21.

* * *

Principal speaker at the Armistice Day assembly of the Rochester senior high school was Dr. Maurice N. Walsh, of the Mayo Clinic, who spoke to students on the theme, "Safeguarding Our America."

* * *

In Crookston, Dr. C. G. Uhley spoke on cancer at a meeting of the Parent-Teacher Association of Washington School on November 15. Dr. Uhley is a director of the Minnesota Division of the American Cancer Society.

* * *

Dr. Robert M. Drake, son of Dr. Charles R. Drake of Minneapolis, is taking a fellowship in pediatrics at the Mayo Foundation. Dr. Drake was married to Miss Merry H. Ekblad last April.

Dr. Jack T. Murphy has become associated with Dr. Joseph M. Ryan in the practice of internal medicine with offices at 524 Lowry Medical Arts Building, Saint Paul. It was erroneously reported in the December issue that his association was with Dr. Joseph M. Riga.

* * *

"New Drugs and New Concepts in Medicine" was the title of a talk given by Dr. Harold G. Benjamin, Minneapolis, at a luncheon meeting of the Minneapolis Professional Men's Club early in December. He cautioned his audience that "each new drug has its limitations."

* * *

Dr. Philip F. Eckman, Duluth, was renamed chairman of the Duluth Chamber of Commerce public health committee, it was announced on November 17. The committee, composed of both physicians and laymen, deals with health problems from a community standpoint.

* * *

It was announced in November that Dr. J. W. Helland, Spring Grove, had been re-elected representative director of the Minnesota Public Health Association. Dr. Helland is president of the Houston County Public Health Association.

* * *

Included in the sixty Northwest physicians who attended a three-day continuation course in gastroenterology at the University of Minnesota in late October were Dr. Roy T. Pearson, Shakopee, and Dr. Harry Shragg, Elmore.

* * *

Dr. and Mrs. Carl W. Waldron, Dr. and Mrs. C. I. Karleen, and Dr. and Mrs. S. G. Balkin, all of Minneapolis, were visitors in November at the Greenbrier, White Sulphur Springs, West Virginia, where the three physicians attended a meeting of plastic surgeons.

* * *

In an address before the Lions Club of Rochester on December 2, Dr. M. M. Hargraves discussed "The Real Objectives of the Izaak Walton League." The talk was given one week before Dr. Hargraves was to retire as president of the Minnesota league upon expiration of his term of office.

* * *

Three European medical groups honored Dr. Henry W. Meyerding, Rochester, during his recent stay in Europe. Dr. Meyerding was made an honorary member of the Netherlands Orthopaedic Association, the Czechoslovak Society of Orthopaedic Surgery and Traumatology, and the French Surgical Society.

* * *

It was announced on November 24 that Dr. Austin McCarthy, formerly of Minneapolis, had become associated with the Willmar Clinic. A graduate of the University of Minnesota Medical School, Dr. McCarthy interned at Minneapolis General Hospital and spent several years there as a resident in surgery.

* * *

Dr. Otto C. Phares, formerly of Minneapolis, has opened offices in St. Cloud at 701½ St. Germain Street. He is limiting his practice to urology. Dr. Phares recently completed a three-year fellowship in urology at Minneapolis General Hospital. He is a graduate of the University of Minnesota Medical School.

* * *

On November 18 the Davis Clinic of Wadena announced the addition of Dr. Thomas D. Moberg, formerly of Minneapolis, to its staff. A graduate of the University of Minnesota Medical School, Dr. Moberg served his internship at Waterbury Hospital, Waterbury, Connecticut.

* * *

Dr. F. N. Grose was named Clarissa's "man of the year" at the annual dinner held on November 11 by the Clarissa Commercial Club. Each year the award is given to the citizen who, in the opinion of the club, has contributed most to community development and progress. Dr. Grose has practiced in Clarissa for twenty years.

* * *

It was announced on November 17 that Dr. Charles E. Stafford planned to leave Baudette within thirty days to become head of the medical department of the veterans hospital at America Lake, near Tacoma, Washington. Dr. Stafford had practiced medicine in Baudette for several years.

* * *

Two Rochester physicians were guest speakers at a meeting of the Minnesota State Dietetic Association in Winona on November 6. Dr. Howard M. Odel discussed "The Dietary Management of Cardio-renal Disease," and Dr. John M. Berkman spoke on "Anorexia Nervosa."

* * *

Dr. A. B. Baker, professor and director of the division of neurology at the University of Minnesota Medical School, spoke on "Progress in Treatment of Infantile Paralysis" at an open forum meeting of the Duluth Chamber of Commerce on November 16. Dr. Baker illustrated his talk with photographic slides.

* * *

Dr. Edward W. Sickels has opened an office at 625 Lowry Medical Arts Building, St. Paul, for the practice of general surgery. Dr. Sickels graduated from the University of Minnesota Medical School in 1940, interned at the Harper Hospital, Detroit, Michigan, for two years, served in the Navy for four years and has been surgical resident at the Miller Hospital, St. Paul, the past two years.

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Physicians visiting Chicago may write in advance or call personally at the headquarters of the Chicago Medical Society, 30 North Michigan Avenue, for a copy of "This Week in Chicago Medicine," which lists the weekly clinics and medical meetings in the Cook County hospitals, medical schools and medical organizations.

* * *

A Swiss chemist, Paul Muller, has been awarded the 1948 Nobel Prize for discovering the insect-killing qualities of DDT. Searching for a drug to protect plants against insects, he discovered the properties of dichlorodiphenyl-trichoroethane which resulted in the saving of thousands of lives from insect-borne diseases during World War II.

* * *

A former fellow with the Mayo Foundation, Dr. Raymond B. Allen, now president of the University of Washington, was the commencement speaker at the fall quarter exercises December 16 at the University of Minnesota. Dr. Allen, who holds among other degrees one of doctor of medicine from the University of Minnesota Medical School, left Minnesota in 1934.

* * *

Dr. Henry F. Helmholz, Rochester pediatrician, reported in December to the International Children's Emergency Fund in New York that undernourishment was increasing among millions of European children in spite of efforts of the fund. He listed as reasons a milk shortage, crop failures and an increased child population in twelve countries receiving aid.

* * *

A former Mayo Clinic staff member, Dr. Edward D. DeLamater has been appointed associate research professor in the department of dermatology and syphilology at the University of Pennsylvania. Dr. DeLamater was formerly a consultant in mycology at the Mayo Clinic and an assistant professor of bacteriology in the Mayo Foundation.

* * *

In Osakis, Dr. Edwin E. Emerson moved into offices in his newly constructed clinic building in November. The one-story building, built of brick and glass blocks, houses a waiting room, laboratory, x-ray room, receptionist's office, emergency room and two examination rooms. Dr. Emerson has practiced in Osakis for two years.

Thirty-six persons—physicians, their wives, and employes—attended a banquet in Crookston on November 10 to observe the twenty-second anniversary of the Northwestern Clinic. A feature of the evening program was the showing of motion pictures taken by Dr. M. O. Oppegaard in California, Mexico, Central America and New York.

* * *

Dr. Victor Johnson, director of the Mayo Foundation, has been appointed to a six-man national committee to undertake a three-year study of medical education in the United States. The study, the third and largest undertaken in American medical history, is sponsored by the American Medical Association and the Association of American Medical Colleges.

* * *

An award from the Mead Johnson Company for outstanding contributions to pediatrics was given to Dr. B. M. Spock, Rochester, at a meeting of the American Academy of Pediatrics in Atlantic City in November. The award was one of two offered each year by the firm for exceptional work in pediatrics and was presented to Dr. Spock by a committee from the academy.

* * *

Six of the Minnesota physicians who attended a continuation course on the diagnosis and treatment of cancer, held at the University of Minnesota December 2, 3 and 4, were Dr. I. L. Oliver, Graceville; Dr. Douglas L. Johnson, Little Falls; Dr. A. D. Rydland and Dr. J. F. Norman, both of Crookston; Dr. Eli E. Christensen, Winona, and Dr. C. A. Saffert, New Ulm.

* * *

At the annual meeting of the staff of the Mayo Clinic on November 15, Dr. J. F. Weir was elected president of the staff, and three members who had reached the retirement age were honored. Placed on emeritus status were Dr. M. S. Henderson, Dr. W. A. Plummer and Dr. Charles Sheard. Dr. Henderson joined the clinic in 1907, Dr. Plummer in 1910, and Dr. Sheard in 1924. Other officers elected at the meeting included Dr. Della G. Drips, vice president, and Dr. E. N. Cook, secretary.

* * *

The board of directors of the Community Health Center and Clinic in Two Harbors announced during the middle of November that Dr. Joseph Bloom, formerly of New York, had arrived to join the clinic staff. A

graduate of the New York Medical College, Dr. Bloom has served as chief resident surgeon at the Flower and Fifth Avenue Hospitals. During the recent war he served for thirty-seven months with the army medical corps.

* * *

Representing the physicians of Granite Falls, Dr. Carl L. Lundell is a member of a newly organized school health council, which was formed to aid in co-ordinating various aspects of the school health program in Granite Falls. One of the first proposals made by the council was a physical examination for all seventh grade students. Other recommendations made by the council included expansion of the dental health program and instruction of pupils in good health practices.

* * *

Dr. Paul C. Bucy, professor of neurology and neurological surgery at the Illinois Neuropsychiatric institute, will deliver a lecture at the University of Minnesota January 27 at 8 p.m. He will speak in the auditorium of the Minnesota Museum of Natural History.

Dr. Bucy's topic will be "The Cerebral Control of Muscular Activity." The lecture is sponsored by the J. B. Johnston lecture in neurology and is open to all medical men.

* * *

The American Legion, at its convention held in Miami in October, 1948, went on record as opposed to compulsory national health insurance and passed a resolution to that effect. The resolution stresses the lowering of standards of health care, the enormous increase in taxes and the necessary increase in federal employes which such a step would entail. A copy of the resolution was mailed to 1,000 of the top leaders of the American Legion urging support of the local branches of the National Physicians Committee.

* * *

Until 1945 research in heart disease had little financial support. In 1945 the life insurance companies of the United States and Canada established the Life Insurance Medical Research Fund to which they have contributed $600,000 a year. This fund is financing more than fifty research organizations for the study of the cause of heart disease. During 1948 this fund began to be supplemented by funds from the American Heart Association and the U. S. Public Health Service, and it is estimated that in the future some $2,000,000 will be available for heart research alone.

* * *

Druggists have shown some concern over the threatened socialization of medicine, and two local Minneapolis drug stores have contributed to the National Physicians Committee. A recent issue of *Drug Topics* calls attention to marked increase in prescription trade and a corresponding lessening in the sale of proprietary remedies in England since medicine was socialized in that country in July. There has been some complaint on the part of English druggists over the increased work this entails and the delay in their receiving government checks.

* * *

Speaking at a meeting of the Minneapolis Community Chest and Council's health and medical care division in December, Dr. Charles E. A. Winslow, professor emeritus in public health at Yale University, said that a proposal supported by President Truman for federal health insurance was a "moderate middle-of-the-road course." Dr. Winslow, who is editor of the *American Journal of Public Health*, said he "cannot see the practical possibility of jumping in all at once" as is urged by some "extremists."

* * *

The St. Louis County board, at a meeting early in December, approved a new medical fee schedule for physicians caring for county patients. The new schedule, representing a 45 per cent increase over previous fees, was to go into effect January I. In commenting on the schedule, Dr. Mario Fischer, acting county health officer, said that the new fees were 43 per cent below fees for similar services charged by the Veterans Administration and also were slightly less than those granted under the Blue Shield program.

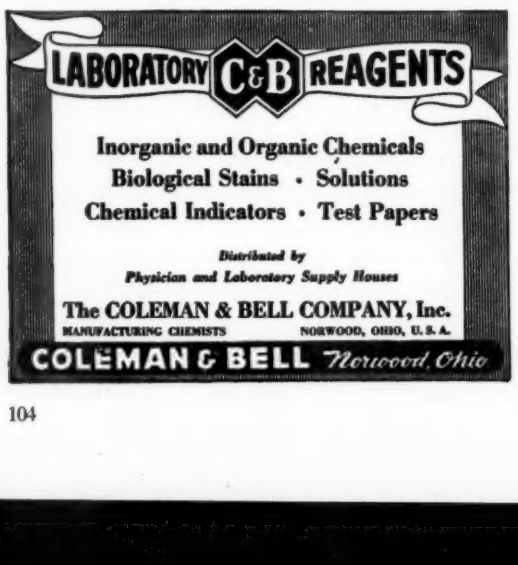
* * *

Six Duluth physicians discussed various phases of industrial medicine on December 1 at the opening of the twenty-fifth annual industrial safety school sponsored by the Duluth Chamber of Commerce. The following physicians appeared at sectional discussion meetings: Dr. W. N. Graves, who spoke on "Burns"; Dr. E. W. Minty, "Hand Infections"; Dr. J. C. O'Neill, "Eye Safety"; Dr. G. C. Doyle, "Industrial Dermatoses"; Dr. W. A. Klein, "Sprains and Strains"; and Dr. Henry Fisketti, "Hand Injuries."

* * *

After thirty-seven years of general practice in Freeborn, Dr. Carl R. Buturf moved to Minneapolis in November where he plans to "take it easy." A year ago Dr. Buturf decided to give up his country practice; he then spent twelve months trying to achieve his goal. He stayed in Freeborn for the extra year trying to help the residents interest another physician in taking over the practice, without success. Finally he closed his office.

In Minneapolis, Dr. Buturf has no intention of living a life of retirement. On the contrary, he plans to spend his time attending dermatology clinics at the University of Minnesota and at Twin Cities hospitals. After thirty-seven years of general practice, he might become a specialist!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It was announced in November that three new physicians had been added to the staff of the Lenont Peterson Clinic in Virginia. They are Dr. Merle Sharp, a graduate of the University of Louisville Medical School, with three years of training in obstetrics and gynecology at the University of Pennsylvania Hospitals; Dr. Robert Kurth, a graduate of Creighton University Medical School, who was in private practice in Iowa for eighteen months; and Dr. Nels Stransjord, a graduate of the University of Chicago School of Medicine, who has taken postgraduate work at the University of California. In the Virginia clinic Dr. Sharp is head of the department of obstetrics and gynecology, and Dr. Kurth is associated with him. Dr. Stransjord is associated with Dr. E. N. Peterson in surgery and industrial medicine. The staff of the Lenont Peterson Clinic now numbers eight physicians.

* * *

Members of the United States Chapter of the International College of Surgeons, meeting in St. Louis, Missouri, November 15 to 19, named Dr. Henry W. Meyerding, Rochester, president-elect of the group, to take office in 1950.

Minnesota physicians were represented on the program by Dr. Winchell McK. Craig and Dr. Claude F. Dixon, Rochester, who were among the sixty-four surgeons who presented papers at the meeting.

Dr. Walter C. Stillwell of Mankato was awarded a fellowship in the College, and Dr. Allen G. Janecky, Warroad, became a matriculate of the group.

Among Minnesota physicians attending the meeting were Dr. M. O. Oppegaard, Crookston; Dr. O. J. Hagen, Moorhead; Dr. M. J. McKenna, Grand Rapids, and Dr. Howard Vogel, New Ulm.

* * *

Dr. S. A. Slater of Worthington, medical director of Southwestern Minnesota Sanatorium, was honored with a certificate of achievement awarded by the Minnesota Public Health Association for "outstanding" contributions in tuberculosis control" at a dinner meeting at Christmas Seal headquarters October 18, 1948. The award was made in recognition of Dr. Slater's pioneer work in Mantoux testing for measuring the effectiveness of tuberculosis control which led to national acceptance. The fact that seven of the ten counties of Southwestern Minnesota have been accredited for outstanding records in tuberculosis control is credited in large part to Dr. Slater's efforts. He is a past president of the Minnesota Public Health Association and of the Mississippi Valley Conference on Tuberculosis and has been representative director of the National Tuberculosis Association since 1930.

* * *

Dr. and Mrs. Henry W. Meyerding of Rochester returned in November from an extended visit to Europe. During their stay, Dr. Meyerding, as president of the organization, attended the Fourth Congress of the International Society of Orthopaedic Surgery and Traumatology, in Amsterdam last summer. He also gave the opening address at the Czechoslovak Society of Orthopaedic Surgery and Traumatology in Prague on September 23, and was made an honorary member of the society. The Netherlands Orthopaedic Association and the French Surgical Society also made him an honorary member. While in Paris, he attended the Congress of the French Surgical Society and the French Orthopaedic Society. Dr. Meyerding has been named president-elect of the United States Chapter of the International College of Surgeons and will take office for two years beginning in 1950.

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SURGERY—Intensive Course in Surgical Technique, two weeks, starting January 24, February 21.
Surgical Technique, Surgical Anatomy and Clinical Surgery, four weeks, starting February 7, March 7.
Surgical Anatomy and Clinical Surgery, two weeks, starting February 21, March 21.
Surgery of Colon and Rectum, one week, starting March 7, April 11.
Surgical Pathology every two weeks.

GYNECOLOGY—Intensive Course, two weeks, starting February 21, March 21.
Vaginal Approach to Pelvic Surgery, one week, starting February 14.

OBSTETRICS—Intensive Course, two weeks, starting March 7.

MEDICINE—Intensive Course, two weeks, starting April 4.
Personal Course in Gastroscopy, two weeks, starting March 7.

PEDIATRICS—Intensive Course, four weeks, starting April 4.

DERMATOLOGY—Formal Course, two weeks, starting April 18.
Clinical Course every two weeks.

CYSTOSCOPY—Ten-Day Practical Course every two weeks.

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Clinical Course starting third Monday of every month.

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The annual Detroit Orthopaedic Lecture, under the auspices of the Wayne County Medical Society, was delivered on December 6 by Dr. Vernon L. Hart of Minneapolis. Dr. Hart presented a copy on "Congenital Dislocation of the Hip: Recognition and Treatment during Infancy before Weight Bearing." He also showed a colored motion picture on the same subject.

University of Minnesota physicians contributed a major portion of the program at a gastric cancer conference sponsored by the National Cancer Institute in San Francisco December 13 and 14.

Minnesota speakers at the meeting included Dr. Leo G. Rigler, professor and chief of radiology and physical therapy; Dr. David State, assistant professor of surgery and director of the University's Cancer Detection Center; Dr. Charles F. Code, professor of physiology at the Mayo Foundation; Dr. Robert Hebbel, associate professor of pathology; Dr. Stanley R. Friesen, instructor in surgery, and Dr. George E. Moore, clinical instructor in surgery and a fellow of the National Institute of Public Health.

Comments by a British subject in regard to Great Britain's expanded health service were recently forwarded to MINNESOTA MEDICINE by Dr. N. O. Pearce, acting director of the division of cancer control, Minnesota Department of Health. Excerpts from a letter, which Dr. Pearce received from England in December, follow:

"I noticed a suggestion that there is being prepared for you a health and insurance scheme to cover you from cradle to coffin. If it is offered to you, I have a feeling you will find the idea very indigestible.

"We have now had five months of the enlarged health service, and as regards the professions, the situation seems to be like this:

"Demand for hospital accommodation has increased tremendously.

"The doctors, in what is normally a healthy period, have been swamped with work, and, in great numbers of cases, are finding severe cuts in their earnings as well as some difficulty in gathering their pay.

"Private practice has almost faded out; this was hardly expected. Dentists and opticians have long waiting lists; already vast numbers of dentures and spectacles have been supplied without cost (except, of course, that women up to sixty and men up to sixty-five have to maintain their weekly contribution). The earnings of the dentists and opticians have been beyond their dreams. We pharmacists have seen dispensing doubled, probably much more than doubled, but remuneration for this is very much more modest, and many are feeling acute difficulty in the heavy outlay in drugs and expensive 'specials' and the long delay between the costing and payment of same. The thought of any sort of epidemic frightens us."

* * *

The Minneapolis War Memorial Blood Bank at 1914 LaSalle Avenue (the former home of Charles B. Rogers) was dedicated on Armistice Day, November 11, 1948, at which time the remodeled building and equipment were open for public inspection.

The original cost of the bank was raised by the Junior Chamber of Commerce of Minneapolis through subscriptions. The director is Dr. Rudolph Koucky, and the Board of Directors is composed of a third doctors, a third hospital administrators and a third civic minded citizens.

For obtaining blood donations, donor clubs have been organized in various industrial plants, church clubs and the like, a fifth of the members of each group agreeing to make a donation of blood each year which entitles the donor and his family free blood in case of need.

The Minneapolis Blood Bank supplies the hospitals and surrounding territory at a nominal charge of $6.00 per unit to cover laboratory work.

The St. Paul Regional Blood Center, operated by the American Red Cross, began operation December 15, 1948, at 91 East Kellogg Boulevard. Dr. E. V. Goltz is in charge.

The St. Paul Center will supply hospitals in Ramsey, Washington, Dakota, Chisago, Isanti, Freeborn, Mower, Winona, Steele, Rice, Blue Earth and Goodhue Counties in Minnesota and Polk, St. Croix, Pierce, Dunn, Chippewa, Eau Claire, Pepin and Barron Counties in Wisconsin.

The generosity of the public in the territory supplied will be relied upon for donors, mobile units to be used for collecting donations from the surrounding territory.

* * *

HOSPITAL NEWS

The physicians' lounge in the Montevideo Hospital, after being in use since 1900, is to be replaced with a new one, it was announced in late November. A check for $1,000 has been presented to the hospital for that purpose by Mrs. L. R. Lima, widow of the late Dr. L. R. Lima of Montevideo.

* * *

In November, Dr. C. A. Traeger, chief of the medical staff of St. Lucas Deaconess Hospital in Faribault, announced that five physicians had been elevated from associate to active staff membership. The five physicians are Dr. D. W. Francis, Morristown; Dr. F. J. Lexa, Lonsdale; Dr. F. C. Meyer, Kenyon; Dr. R. R. Moses, Kenyon, and Dr. C. A. Rohrer, Waterville.

* * *

The Willmar State Hospital provided conducted tours for the public during the first week of December as part of the observation of Mental Health Week. The tours were arranged to give the public a better idea of the problems and procedures in a mental hospital and to show how the use of restraints could be reduced if sufficient hospital personnel were available. At the time of the tours an experimental anti-restraint program had been started at the hospital, but due to lack of personnel the

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non-restraint techniques could be used in only three of the hospital's cottages. Where the experimental techniques were used, however, it was found that the number of restraints could be greatly reduced. The program was under the direction of Dr. Stanley B. Lindley, hospital superintendent.

* * *

Contracts totaling $849,554 for the construction of the Variety Club Heart Hospital at the University of Minnesota were awarded December 17, 1948, to three Twin Cities contractors, and work on the project started shortly after Christmas.

Bids for the new eighty-bed hospital to be erected on the Mississippi River bank adjacent to University Hospitals were opened November 24, and held open pending action on a University application for $325,334 of federal funds under the Hill-Burton Hospital construction act.

Upon notification from the United States Public Health Service of approval of a grant of $310,271 for construction of the hospital building and an additional grant of $15,063 for the purchase of equipment, University officials awarded contracts to the low bidders.

Successful bidder for the general contract is the firm of Naugle-Leck, Inc., of Minneapolis with a net figure of $573, 575. The plumbing, heating and ventilating work was awarded to Reuben L. Anderson, Inc., St. Paul, on a bid of $214,920, while the Batzli Electric Company of Minneapolis took the electrical contract with a low bid of $61,059. The contracts call for completion of the project within a period of 548 days.

Completed, the new hospital, with equipment, is expected to cost $987,285. Funds which will pay the structure will come from the following sources: Variety Club of the Northwest, $464,000 ($304,000 of which has been raised and an additional $160,000 pledged); grant of federal funds under the Hill-Burton Act, $325,334; University funds now on hand from several sources, $97,951; and a bank loan of $100,000 to be repaid over a ten-year period.

* * *

Despite spiraling costs of operations and a severe shortage of staff, University of Minnesota Hospitals cared for more patients during the year ending last June 30 than in any previous year, according to the annual report of Ray M. Amberg, hospitals director.

During the year, 9,752 patients were admitted to the hospitals for treatment as compared with 9,532 admitted during the previous year and 9,220 during 1945-46. The hospitalization period averaged 14.1 days, while the average for the year before was 15.2 days and for 1945-46, 15.4 days.

Surgical operations performed in University Hospitals totaled 7,603, an increase of 865 over the previous twelve months and 1,908 over the year 1945-46.

Visits to the hospitals' out-patient department during the period totaled 90,566. Compared with the 80,611 visits recorded in 1946-47 and the 74,110 calls made by patients during 1945-46 for diagnosis and treatment, this figure illustrates the increasingly heavy load being borne by this division of University Hospitals.

Startling increases in the costs of operating the hospitals were disclosed by Amberg in his annual report. In-patient department costs soared from $9.49 per patient per day in 1945-46 to $12.02 in 1946-47 and to $16.31 in 1947-48, a boost of $6.82 in two years—$4.29 in the last year alone. The cost per patient visit in the out-patient department averaged $3.72 during the last year or 58 cents above the $3.14 cost during 1946-47 and 87 cents over the 1945-46 visit cost of $2.85.—University of Minnesota News Service, October 8, 1948.

BLUE SHIELD NEWS

Applications received for Blue Shield to November 30, 1948		116,466
Blue Shield cases paid from November 1 to November 30, 1948		886
	Total....1948	3,459
Amount paid on Blue Shield cases from November 1 to November 30, 1948		$ 33,139.38
	Total....1948	$128,814.18

As each supplemental list of licensed and registered doctors of medicine is released by the Minnesota State Board of Medical Examiners, Minnesota Medical Service, Inc. (Blue Shield) receives a copy. The physicians on this list are usually non-participating, unless they have previously contacted the Blue Shield office relative to becoming participating.

The last supplemental list received in the Blue Shield office contained the names of about seventy physicians residing in Minnesota who were not participating in the

Blue Shield plan. In September, 1948, letters and descriptive literature explaining the plan were sent to these physicians, but to date only a very small percentage of them have returned their signed applications. Perhaps many of these gentlemen are not in private practice, or do not reside in Minnesota, or cannot become participating doctors for one reason or another, we do not know. However, it is felt that many of these doctors could and should participate. Undoubtedly, in some cases this Blue Shield material has been misplaced or perhaps slipped the physician's mind and is only called to his attention on the day he renders service to a Blue Shield subscriber.

With the increasing number of persons covered by Blue Shield in Minnesota, more and more physicians are rendering service to Blue Shield patients. For a number of reasons, the newly licensed and registered doctors should give some consideration to becoming Blue Shield participating doctors. In the first place, Blue Shield reduces the collection problem for the doctor, for all allowances on Blue Shield cases are made directly to the physician within ten days after the report form is received in the Blue Shield office. Secondly, according to the Blue Shield subscriber's contract, an allowance of only 75 per cent of the maximum amount allowable would be paid to a non-participating doctor, in which case the Blue Shield subscriber patient is penalized and the doctor can also be hurt in that it is his problem to collect any balance due.

If the doctors in a state can show wholehearted support and co-operation with a prepaid medical care plan, such as Blue Shield, they have a powerful weapon with which to combat government medicine, and will not have to think of the future as one Minnesota doctor recently expressed it in a letter to the Blue Shield, "To have to move to the Fiji Islands and practice for cocoanuts and rum."

May we also express the opinion that other non-participating doctors throughout the state give the above some thought. Any additional information or application cards for enrollment may be obtained from the Blue Shield office.

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BOOK REVIEWS

Books listed here become the property of the Ramsey, Hennepin and St. Louis County Medical Libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

ANATOMICAL CHARTS TO BE PUBLISHED IN BOOK FORM

Soon to be issued in book form are the Ciba illustrations of anatomy and pathology which were prepared by Frank H. Netter, M.D. These full color drawings have been distributed to physicians for the last several years in portfolio form by Ciba Pharmaceutical Products, Inc., Summit, N. J.

These anatomical charts have been widely acclaimed in the medical profession. In many medical schools they are used as teaching aids and physicians have found them valuable in office instruction of patients.

While portfolios of new drawings will be issued from time to time, the new book will bring together those that were distributed up to January 1, 1948.

The book will measure 9½ x 12½ inches and contain 224 pages, showing 191 of these anatomical charts printed in full color. It will be sold by Ciba at a price to cover only the actual printing and binding costs.

The subjects covered in the book will be as follows:

Subject	*Number Full-Color Plates*
The Lungs and Chest	36
Injuries to the Chest	12
The Esophagus	12
The Stomach	19
The Duodenum	12
The Small Intestine	20
The Colon	20
Injuries of the Abdomen	10
The Testicle	14
The Prostate	5
The Male Breast	2
The Female Breast	18
The Heart and Aorta	11

The illustrations will be printed on 80-pound gloss enamel paper and the book will be bound in boards with blue buckram covering and the title stamped in genuine gold on the front and spine.

TREATMENT BY DIET, by Clifford J. Barborka, B.S., M.S., M.D., D.Sc., F.A.C.P.; Assistant Professor of Medicine, Northwestern University Medical School, Chicago; Attending Physician, Passavant Memorial Hospital; Consultant in Gastro-enterology and Gastroscopy, Diagnostic Center, Hines Veterans Hospital; Formerly Consulting Physician, The Mayo Clinic. 5th ed. 784 pages. Illus. Philadelphia, London, Montreal; J. B. Lippincott Co., 1948. Price $10.00.

In the mysterious field of the medical uses of diet, Dr. Barborka has written a clear, though somewhat bulky, exposition of the medical uses of food. His book is divided, logically, into a discussion of normal diet and diet in pathological states; then further divided into those pathological states in which diet is of paramount importance, such as diabetes mellitus, Addison's disease, and so on, and those in which diet is of variable importance, such as heart disease and various infections.

Though the author includes many diseases in the last section in which diet is of trivial importance, he does maintain a reasonable sense of the relative importance of diet. His point of view is realistic; he is specific and direct. His discussion of theory is reduced to a minimum. The typical diets and tables are varied and numerous. In summary, Treatment by Diet is of value to anyone, from the dietitian to the general practitioner, who must prescribe diets.

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